

IRA WARREN, A.M., M.D.

THE
HOUSEHOLD PHYSICIAN

A TWENTIETH CENTURY MEDICA

A PRACTICAL DESCRIPTION IN PLAIN LANGUAGE OF ALL
THE DISEASES OF MEN, WOMEN AND CHILDREN

WITH THE

LATEST DISCOVERIES IN MEDICINE AND MOST APPROVED METHODS OF
TREATMENT. BY A CORPS OF EMINENT SPECIALISTS,
PRACTISING PHYSICIANS AND SURGEONS

HERBERT E. BUFFUM, M.D.

Fellow of the Massachusetts Medical
Society.

A. T. LOVERING, M.D.

Member of the Faculty of Boston Uni-
versity School of Medicine.
Member Boston Homœopathic Medical
Society.

IRA WARREN, A.M., M.D.

Fellow of the Massachusetts Medical
Society, etc.

A. E. SMALL, A.M., M.D.

Ex-President of the Hahnemann Medi-
cal College, Chicago, Ill.

WILLIAM THORNDIKE, M.D.

Fellow of the Massachusetts Medical
Society, and Member of Boston
Society for the Improvement
of Medicine, etc., and others.

J. HEBER SMITH, M.D.

Professor of Materia Medica, Boston
University School of Medicine, and
late President of Massachusetts
Homœopathic Society.

Veterinary, CHARLES P. LYMAN, F.R.C.V.S.

President United States Veterinary Medical Association
Veterinarian-in-Chief to the Agricultural Department at Washington, D. C.
Member Massachusetts Veterinary Society,
Fellow of Royal College of Veterinary Surgeons, England,
Professor of Theory and Practice, and Dean of the School of Veterinary Medicine
in Harvard University.
Secretary of the Board of Cattle Commissioners of the Commonwealth of
Massachusetts.

FULLY ILLUSTRATED WITH MANIKINS, COLORED AND HALF-TONE PLATES

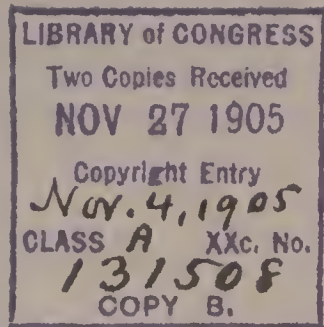
THIS BOOK IS PUBLISHED STRICTLY AS A SUBSCRIPTION BOOK
AND TO BE SOLD ONLY AS SUCH

BOSTON

PHYSICIANS' PUBLISHING COMPANY

James T. Wetherald, Pres. Fred'k O. Woodruff, Treas.

1905



COPYRIGHT, 1905
PHYSICIANS' PUBLISHING CO. (INC.)

THE HOUSEHOLD PHYSICIAN
Is registered as a Trade Mark.

ENTERED IN STATIONERS' HALL,
LONDON, ENGLAND.

RIGHT OF TRANSLATION IS RESERVED.

EMINENT AUTHORITIES CONSULTED

WHOSE WORKS ARE WELL KNOWN

ALLOPATHIC TREATMENT

MEDICINE.

REGINALD FITZ, A.M., M.D.
H. C. WOOD, A.M., M.D.
HERBERT A. HARE, M.D., B.S.C.

VENEREAL DISEASES.

ROBERT W. TAYLOR, M.D.
PROF. ISODORE NEWMAN of Vienna.

DISEASES OF THE SKIN.

J. N. HYDE, A.M., M.D.
PROF. MORIZ KAPOSÍ of Vienna.

DISEASES OF THE EAR.

DR. ADAM POLITZER.

SURGERY.

DR. ROSWELL PARK,
F. S. DENNIS, A.M., M.D.
J. A. W. WHITE, M.D., PH.D.
W. W. KEANE, M.D.

CHILDREN'S DISEASES.

THOMAS ROTCH, A.M., M.D.

DISEASES OF THE EYE.

G. E. DESCHWEINITZ, A.M., M.D.

DISEASES OF WOMEN.

H. J. GARRIGUES, A.M., M.D.
H. A. KELLY, A.M., M.D.
E. P. DAVIS, A.M., M.D.
RICHARD NORRIS, A.M., M.D.

HOMŒOPATHIC TREATMENT

MEDICINE.

WILLIAM OSLER, M.D., F.T.S., F.R.C.P.,
Baltimore, Md.
JAMES M. ANDERS, M.D., PH.D.,
LL.D., Philadelphia, Pa.
H. R. ARNDT, M.D.,
Grand Rapids, Michigan.
WILLIAM BORRICKE, M.D.,
San Francisco, Cal.
J. M. DACOSTA, M.D., LL.D.,
Philadelphia, Pa.
DR. WILHELM V. LEUBE,
Wurzburg, Germany.
A. C. COWPERTHWAIT, M.D., PH.D.,
LL.D., Chicago, Ill.
TIMOTHY F. ALLEN, A.M., M.D.,
New York.

DISEASES OF THE EAR, NOSE AND THROAT.

SETH SCOTT BISHOP, M.D.,
Chicago, Ill.
HORACE F. IVINS, M.D.,
Philadelphia, Pa.
D. BRADEN KYLE, M.D.,
Philadelphia, Pa.
E. B. DENCH, PH.B., M.D.,
New York.

DISEASES OF THE SKIN.

W. ALLAN JAMIESON, M.D., F.R.C.P.,
Edinburgh, Scotland.

SURGERY.

WILLIAM W. KEEN, M.D., LL.D.,
Philadelphia, Pa.
PROF. E. CON BERGMANN,
Berlin, Germany.
C. E. FISHER,
Chicago, Ill.
T. L. MACDONALD,
Washington.
H. R. WHARTON, M.D.,
Philadelphia, Pa.

DISEASES OF THE STOMACH.

PROF. C. A. EWALD,
Berlin, Germany.

DISEASES OF THE HEART.

ROBERT H. BABCOCK, A.M., M.D.,
Chicago, Ill.

VENEREAL DISEASES.

PRINCE A. NORROW, A.M., M.D.,
New York.

URINARY ORGANS.

CLIFFORD MITCHELL, A.B., M.D.,
Chicago, Ill.

DISEASES OF CHILDREN.

C. SIGMUND UND RAUE, M.D.,
Philadelphia, Pa.
L. EMMETT HOLT, M.D., LL.D.,
New York.
CHARLES E. FISHER, M.D.,
Chicago, Ill.

PHARMACODYNAMICS.

RICHARD HUGHES, M.D., F.R.C.P.,
London. Eng.

GYNECOLOGY.

G. R. SOUTHWICK, M.D., Boston.
J. C. WOOD, A.M., M.D., Cleveland, O.
C. N. A. L. REED, A.M., M.D.,
Cincinnati, O.

HYGIENE.

CHARLES HARRINGTON, M.D., Boston.

FEVERS.

H. C. ALLEN, M.D., Chicago, Ill.

OTOLOGY.

GORHAM BACON, A.B., M.D.,
New York.

NERVOUS DISEASES.

FRANCIS X. DERCUM, A.M., M.D.,
Ph.D., Philadelphia, Pa.
W. R. GOWERS, M.D., F.R.C.P.,
F.R.S., London, England.
DR. LUDWIG HIRT,
Breslau.
CHARLES M. DANA, A.M., M.D.,
New York.
F. SAVARY PEARCE, M.D.,
Philadelphia.

DISEASES OF THE EYE.

L. WEBSTER FOX, A.M., M.D.,
Philadelphia, Pa.
CHARLES H. MAY, M.D.,
New York.

PATHOLOGY.

ALFRED STENGEL, M.D.,
Philadelphia.

RONTGEN RAY.

CARL BECK, M.D., New York.

MENTAL DISEASES.

HENRY D. BERKLEY, M.D.,
Baltimore.
S. H. TALCOTT, A.M., M.D., Ph.D.,
Middletown, N. Y.

OBSTETRICS.

J. CLIFTON EDGAR, M.D.,
New York.
B. C. HIRST, M.D.,
Philadelphia, Pa.
G. W. VARMAN, M.D.,
New York.

PREFACE

TO THE

Household Physician.

THIS book is written for the people. It is based on the assumption that every man—the mechanic, the farmer, and the day laborer, as well as the professional and business man—has a right to all the knowledge he is capable of acquiring, on all subjects, medicine not excepted. The book aims, therefore, to popularize and adapt to the many what has been claimed as belonging only to the few.

We do not hesitate to avow that our sympathies are with the great masses, who may be called the bone and muscle of the race. They are, in the main, more shrewd, more endowed with common sense, more simple and true in their natural instincts, and consequently less perverted, than many of those who claim more refinement and a higher place in the social scale.

“All men,” says Hippocrates, one of the great fathers of medicine, “ought to be acquainted with the medical art. We believe that knowledge of medicine is the sister and companion of wisdom.” Such knowledge would shield the many from the impositions of quackery. No one who reads this book thoroughly will be often imposed upon thereafter by quack nostrums, or quack doctors. Every man’s physical organization is his own; and he is charged with the responsibility of taking care of it. To do this properly, he needs knowledge of it, and to withhold this from him is another form of the old oppression, which decreed knowledge and power to the few, and ignorance and obedience to the many.

In accordance with the design of the work, it has been written in plain, simple English, and brought within the comprehension of all who have medium powers of mind.

PREFACE.

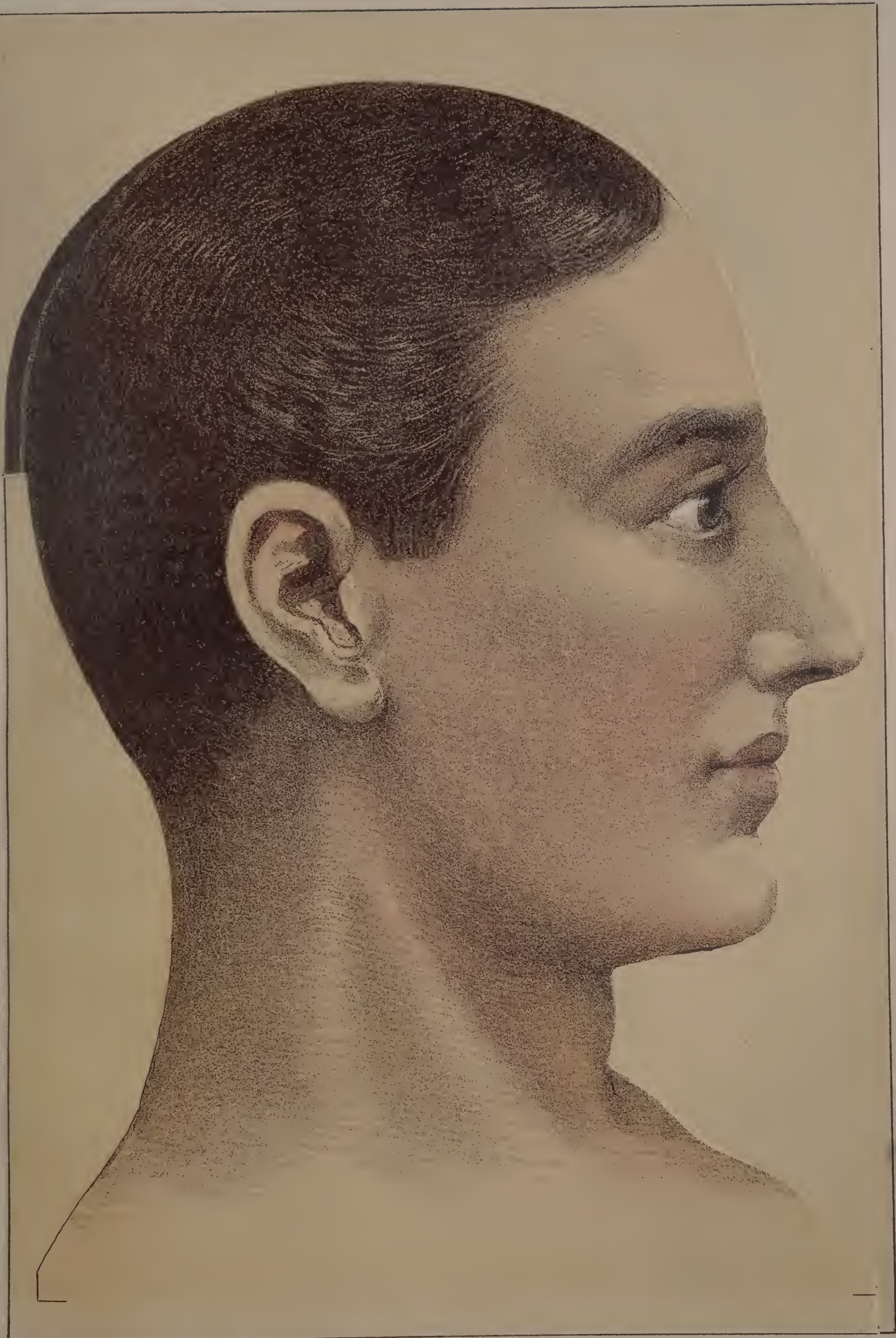
This book was prepared by a number of Medical Experts on different diseases, the work is not a compilation, but based on large practice and wide experience. In dealing with each disease we have aimed to sketch a brief pen-and-ink portrait, so like it that every reader shall know the original whenever he sees it; we then give, in the fewest words, the best treatment.

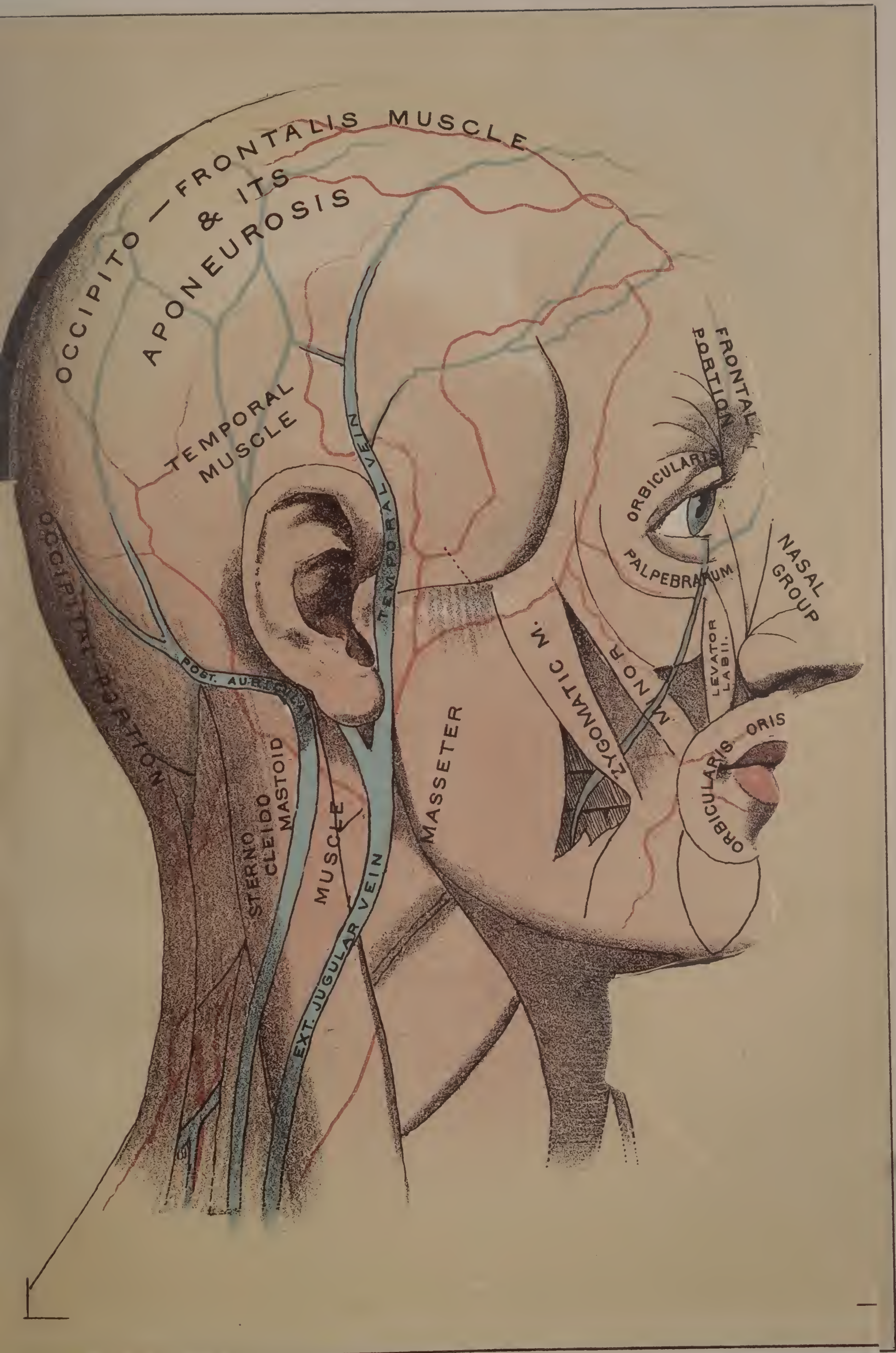
No work of the sort has ever explained the reasons or given the whys and wherefores of medicine anything like the extent of this book, thousands of which are on their mission of instruction, and carrying comfort and relief to as many homes throughout the land.

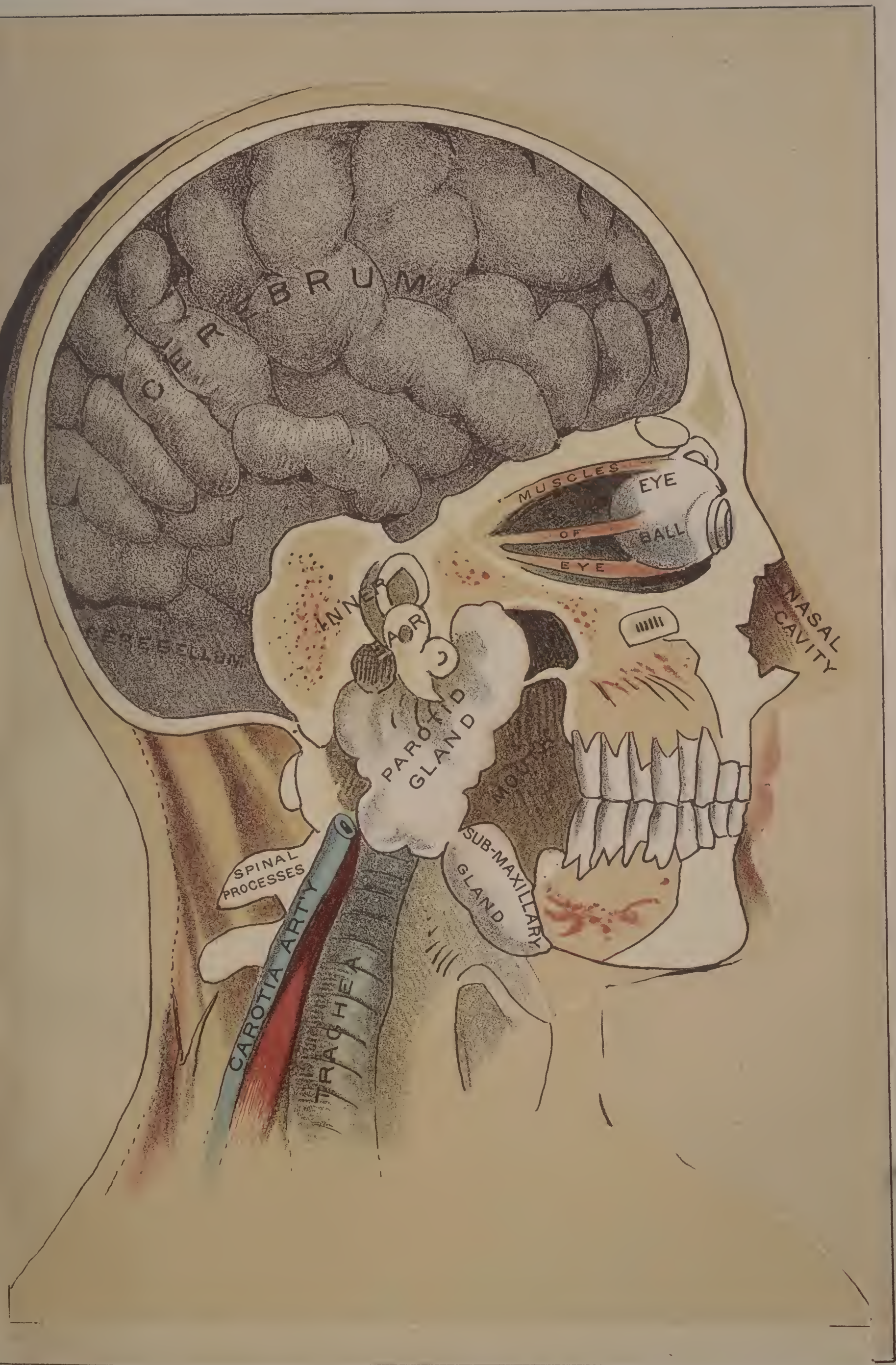
No pecuniary effort has been spared to include every known discovery of medicine and nursing to make this book absolute perfection, and to those who make of it a careful and intelligent study, it will prove to them in value "its weight in gold."

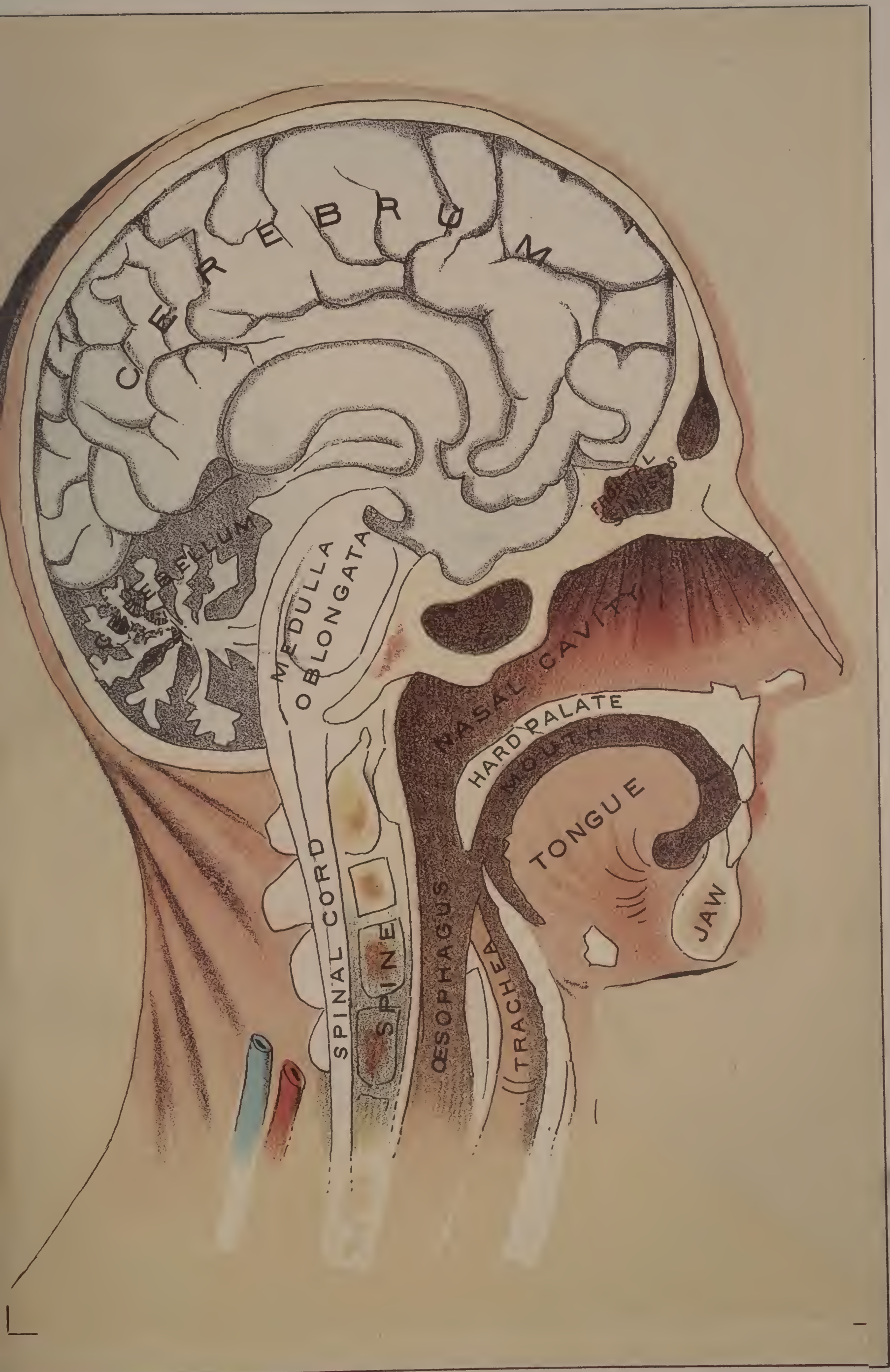
The book is extravagantly illustrated with engravings done expressly for this work, the colored lithographs and manikins were drawn under the supervision of expert surgeons, and add much to its value.

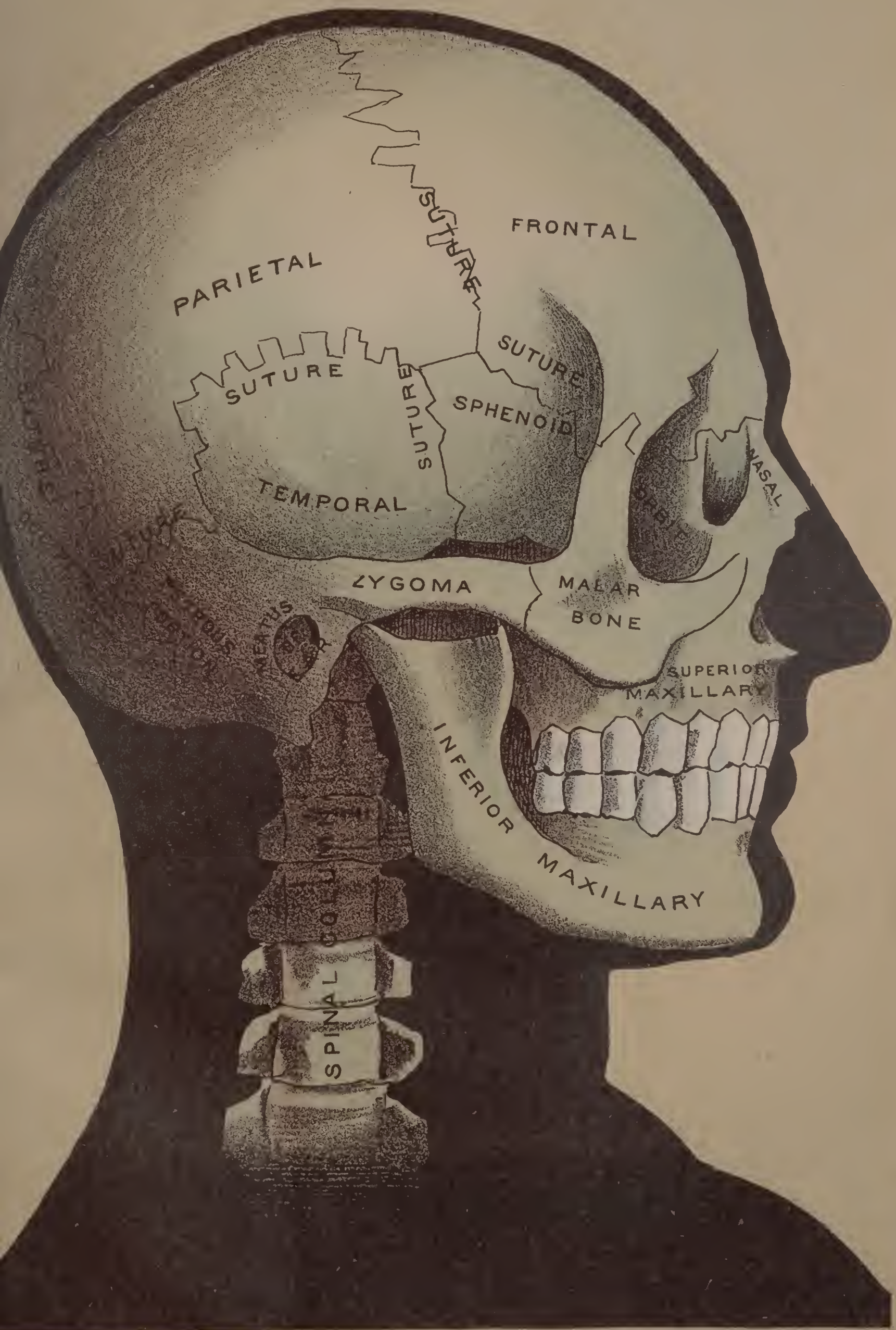
PHYSICIANS' PUBLISHING COMPANY.











CONTENTS.

	PAGE
Preface	1
General Introductory Remarks	6-14
Anatomy —Structure of the body—Chemical Properties of the Body—Physical Properties of the Body—Vital Properties of the Body—Anatomy of the Bones—Bones of the Head—Bones of the Trunk—Bones of the Upper Extremities—Bones of the Lower Extremities—The Joints—Uses of the Bones—The Muscles—The Teeth—Uses of the Teeth—Digestive Organs—Urinary System—Respiratory Organs—Organs of Circulation—Absorbent Vessels—Organs of Secretion—Vocal Organs—Skin—Nervous System—Organs of Sight—Organs of Hearing	16-57
Hygiene —Life, the Infancy of Being—Nervous System—Sensations—Sympathetic Nervous System—Food and Digestion—Nature and Destination of Food—Cost of Food—Amount of Food Taken—Animal and Vegetable Food—Proportions of Animal and Vegetable Food—Tea and Coffee—Water—Exercise—Passive Exercise—Rest and Sleep—Objects of Clothing—Bathing and Cleanliness—Air and Ventilation—Travelling—Amusements	59-127
Temperaments and Constitution of the Body and Symptoms of Diseases —Medication and Temperaments—The Constitution—How to Examine a Patient—Explanatory Table of Symptoms—Temperature of the Body—Strength and Warmth from Food and Drink—Sickness During Life—Human Longevity—Weight of the Human Body—Symptoms of Different Diseases	128-123
Skin Diseases —Congestive Inflammation of the Skin—Measles—Scarlet Fever—Smallpox—Varioloid—Chicken Pox—Cow Pox—Erysipelas—Nettle Rash—Rose Rash—Inflammatory Blush—Watery Pimples—Eczema and Salt Rheum—Shingles—Itch—Rupia—Pemphigus—Matterly Pimples—Crusted Tetter—Papulous Scall—Scaly Eruptions—Leprosy—Psoriasis—Pityriasis—Dry Pimples—Lupus—Warts and Corns—Mother's Marks—Nerves of the Skin—Color of the Skin—Disorders of the Sweat Glands, Oil Glands and Tubes—Barber's Itch—Disorders of the Hair and Tubes—Lice—Bed-Bugs—Freckles—Corns—Bunions—Dandruff—Baldness	155-185
Diseases of Brain and Nerves —Brain Fever—Softening of the Brain—Abscess of the Brain—Tumors of the Brain—Delirium Tremens—Inebriety—Enlargement and Shrinking of the Brain—Water in the Head—Dropsy of the Brain—Cerebro-Spinal Fever—Diseases of the Spinal Cord—Apoplexy—Sunstroke—Paralysis—Hydrophobia—Locked Jaw—Epilepsy—Catalepsy—St. Vitus' Dance—Cramps—Pains of Nerves—Tic Douloureux—Sciatica—Insanity—Melancholy—Mania—Dementia—Idiocy—Hypochondria—Hiccough—Fainting—Dizziness of the Head—Nightmare—Headaches	188-234
Diseases of the Throat —Nasal Catarrh—Sore Throat—Inflammation of the Mucous Membrane—Inflammation of the Windpipe—Elongation of the Uvula—Tonsilitis—Influenza—La Grippe—Inflammation of the Epiglottis—Mumps	236-257
Diseases of the Chest —Consumption—Causes of and Cure for—Diet in Consumption—Bronchitis—Swelling of Lungs—Enlargement of Air Cells—Pulmonary Apoplexy—Air and Water in the Chest—Pleurisy—Lung Fever—Pneumonia—Typhoid Pneumonia etc.—Asthma—Hay Fever	236-304

Diseases of the Heart —Sounds of the Heart—Enlargement of the Ventricles—Dilatation of the Ventricles—Tumors of the Heart—Softening of the Heart—Fatty Degeneration of the Heart—Shrinking of the Heart—Inflammation of the Heart Case—Inflammation of the Heart Case and Heart—Inflammation of the Lining of the Heart—Disease of the Heart Valves—Water in the Heart Case—Palpitation of the Heart—Neuralgia of the Heart—Polypus of the Heart—Displacement of the Heart	306-322
Diseases of the Abdominal Cavity —Inflammation of the Liver—Congestion of the Liver—Cirrhosis of the Liver—Inflammation of the Spleen—Jaundice—Gall Stones—Inflammation of the Stomach—Indigestion—Dyspepsia—Heart Burn—Cramps in the Stomach—Water Brash—Vomiting—Seasickness—Milk Sickness—Inflammation of the Peritonium—Inflammation of the Bowels—Appendicitis—Cancer of the Intestine—Intestinal Obstruction—Colic—Air Swellings—Constipation—Piles—Diarrhoea—Cholera Morbus—Asiatic Cholera—Dysentery—Worms—Inflammation of the Kidneys—Inflammation of the Bladder—Bright's Disease—Diabetes—Bleeding from the Kidneys—Suppression, Retention and Inability to Hold Urine—Gravel—Phosphatic Deposits—Oxalic Deposits—Acid Deposits—Bladder Stones—Dropsy of the Belly—General Dropsy	324-392
Venereal and Sexual Diseases —Pox—Clap—Self-Pollution	394-413
Female Diseases —Inflammation, Ulceration and Enlargement of the Neck of the Womb—Inflammation of the Ovaries—Whites—Absence of the Menses—Profuse Menstruation—Painful Menstruation—Green Sickness—Cessation of the Menses—Hysterics—Polypus of the Womb—Inflammation of the Womb—Falling of the Womb—Tumors of the Womb—Cancer of the Womb—Ovarian Tumors—Inflammation of the Fallopian Tubes—Inflammation of the Vagina—Itching of the External Parts—Tubal Pregnancy—Sterility—Prevention of Pregnancy—Midwifery—Miscarriage—Abortion—Labor—Antiseptic Dressings—Milk Leg—Child-Bed Fever—Convulsions—Hemorrhage—Nursing Sore Mouth—Broken Breast—Sore Nipples—Married Ladies' Calendar	415-451
Care of Children and Diseases —How to Nurse Sick Children—Inflammation of the Mouth—Inflammation of the Gums—Canker of the Mouth—Difficult Teeth Cutting—Croup—Spasm of the Glottis—Whooping Cough—Diarrhoea—Summer Complaint—Colic—Falling of the Bowel—Gastric Fever—Rickets—Mesenteric Disease—Blue Disease—Fits	483-508
Diseases of the General System—Miscellaneous Diseases —Blood—Anæmia—Chlorosis—Leucocytosis—Bacteriology—Fever—Typhoid Fever—Prevention of Typhoid—Bilious Remittent Fever—Congestive Fever—Fever and Ague—Yellow Fever—Rheumatism—Gout—Scrofula—Scurvy—Purple Disease—Diphtheria—Canker	510-540
Diseases Peculiar to Modern Times—Old Age and its Diseases —Changes Occurring in Advanced Life—Medical Treatment of the Old—Diseases of the Old—Bronchial Flux	542-558
Accidents from Noxious Vapors —Drowning—Lightning—Hanging—Fire—Water—Poisoning and Antidotes for Same—Mineral Poisoning—Vegetable and Other Poisons	560-569
Surgical Diseases —Modern Surgery—Inflammation—Suppuration and Abscess—Mortification—Pyæmia—Ulceration and Ulcers—Boils—Carbuncle—Malignant Pustule—Burns and Scalds—Frost Bite—Chilblains—Mechanical Injuries—Septic Wounds—Incised Wounds—Rules for Examining and Dressing Wounds—Antiseptic Dressings—Wound Wounds Unite—Punctured Wounds—Lacerated Wounds—Gunshot Wounds—Poisoned Wounds—Fractures—Wound Broken Bones Unite—Dislocations—Sprains—Pereostitis—Different Diseases of Bones—White Swelling—Bunions—Tumors—Cancer—Felon—Polypus—Piles—Wry Neck—Deformities of the Spine—Rupture—Varicose Veins—Aneurisms—Wens—Stye—Ophthalmia—Imperfect Vision—Short and Long Sight—Affections of the Ear—Ingrowing Toe Nail—How to Stop Flow of Blood—Compression of Arteries—Anaesthetics—Care of the Teeth—Ulcer of the Stomach—Glanders—X-Ray—Radium—Flatfoot—Bandages—How to Put them on	571-680

	PAGE
Homœopathic Treatment of Diseases —Forms of Medicine for Administration— Selecting and Using Remedies—Care of Medicines—General Considera- tions—Diseases of the Ear—Diseases of the Eye and Eyelids—Diseases of the Respiratory Organs—Baldness—Ringworm—Blackheads—Ery- sipelas—Prickly Heat—Malignant Pustule—Skin Diseases—Diseases of the Digestive Organs—Diseases of Organs of Circulation—Diseases of the Genito-Urinary Organs—Diseases of Infants and Children—Diseases of Women—Surgical Diseases—Diseases of the General System and Miscellaneous Diseases—Diseases of the Nervous System	682-892
Processes of Hydropathic Treatment —Different Baths—Sea Bathing—In- jections—Rules for Using Water—Wet Bandages—Compresses—Wet Sheet Pack—Wet Dress—Half Pack—Folded Wet Sheet—Rubbing Wet Sheet—Douche, Shower, Cataract, Hose, Wave, Plunge, Head, Leg, Sitz, Wash Tub, Sponge, Foot, Nose, Eye and Ear and Mouth Baths	894-917
Domestic Management of the Sick Room —Fumigation—Freezing Mixtures— Attendants—Prognostics—Bed Sores—Diet in Disease and Convales- cence—Fluid Aliments	920-952
Art and Science of Cooking for the Sick Room	953-962
How to Prepare Wines and Tonics for the Convalescent.	963-969
Dieting in Regard to Health	970-972
“ “ Disease	973-974
Bathing —Russian, Turkish, Vapor and Other Baths	975-978
Medicines and Their Preparations	982-1140
Proprietary and Patent Medicines	1141-1146
Woman Beautiful —A Treatise on How to Keep Young	1148-1166
Physical Culture —Gymnastics—Dumb-Bell Exercise—Jiu Jitsu—Special Course in Physical Culture—Whitely Exercisor	1169-1214
Veterinary Medicine —Definitions—The Pulse—Respiratory Organs—Temper- ature—General Diseases Common to all Animals—General Plethora— Anæmia—Blood Poisoning—Anthrax—Expressions Peculiar to Ani- mals—Hydrophobia—Rabies—Glanders—Tuberculosis—Lockjaw—Pox —Lump Jaw—Horse Ail—Epizootic—Pneumonia—Distemper—Foot and Mouth Disease—Texan Cattle Fever—Hemorrhage—Rinderpest— General Inflammation—Catarrh—Sore Throat—Bronchitis—Heaves— Asthma—Congestion of the Lungs—Pleurisy—Hydrothorax—Disorders of Organs of Digestion—Diseases of the Intestines—Diseases of Urinary Organs—Diseases of the Brain—Diseases of the Spinal Cord—Diseases of the Skin—Diseased Condition of the Joints—Diseases of the Foot— Shoeing—Parasitic Diseases—Methods of Giving Medicine—Table of Doses—Prescriptions	1217-1403
Glossary	1405-1408



ILLUSTRATIONS.

This book contains about five hundred illustrations, the principal ones of which are given below.

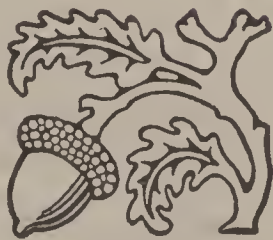
HALF-TONES.

	PAGE.
A Perfect "Cupid Bow" Mouth	1165
A Physical Culture Student	1168
Back and Shoulder Development	1171
Bandages	674-680
Blackberry Vine	1097
Body Poise	1149
Cayenne Pepper	1097
Celery	1097
Chest Expansion	1171
Compression of Arteries	658-660
Correct Way to Walk	1149
Dandelion	1097
Development of the Female Figure after Physical Culture Treatment	1205
Exercise for Stout Women	1151
Exercise for Strengthening the Back	1151
Exercise to Reduce Double Chin	1159
Exterior of the Cow	1398
Flatfoot	672
How to Lift the Sick and Injured	568-569
Hydrangea	1098
Jiu-Jitsu Holds	1188-1198
Lemons	1094
Lifting Heavy Dumb-bell	1174
Making the Arms Plump	1157
Manicuring	1160
Massaging Forehead	1156
" Neck and Shoulders	1157
" Scalp	1163
Medicine Cases	892
Muscles of the Horse	1392
" " " Human Body	31-32
Nerves and Arteries of the Brain	186
" of the Face	876
Perfect Arm Development	1173
Plaster Treatment for Wrinkles	1156
Points of the Horse	1389
Poke	1098
Pumpkin	1098
Reduction of Obesity	1203
Removing Hairs from Eyebrows	1163
Rested by Music	1160
Skeleton of the Cow	1399
" " " Horse	1395
" " " Human Body	21
" " " Sheep	1402
" and Internal Organs of the Dog	1403
Skull Cap	1099
Star Grass	1099
Steaming the Face	1154

	PAGE.
Teeth	499
“ of the Cow	1401
“ “ Horse	1397
The Way the Baby Should be Held in Quieting and Feeding	485
Tomato	1098
Tulip Tree	1099
Use of Flesh Brush	1154
White Pond Lily	1099
Woman Beautiful	1147

COLORED PLATES.

Manikin of Human Head	Facing	<i>Table of Contents</i>
Muscles of Human Body	Facing	page 29
Arteries and Veins of the Human Body	“	“ 658
Manikin of Human Trunk	“	“ 60
Nerves of the Human Body	“	“ 66
Measles and Scarlet Fever	“	“ 156
Small Pox	“	“ 160
Erysipelas	“	“ 163
Results of Strong Drink	“	“ 194
Heart, Lungs, Stomach and Kidney	“	“ 310
Syphilitic Eruptions	“	“ 396
“ Affections of the Throat	“	“ 404
Diseases of the Womb	“	“ 420
Womb	“	“ 442
Internal Organs of Human Body	“	“ 682
Medicinal Plants (Aloes, etc.)		
“ “ (Bittersweet, etc.)		
“ “ (Dandelion, etc.)		
“ “ (Ground Ivy, etc)	Between pages 988 and 1064	
“ “ (Hemlock, etc.)		
“ “ (Mullein, etc.)		
“ “ (Plantain, etc.)		
“ “ (Thoroughwort, etc.)		
Internal Organs of Horse	Facing	Title page 1215
“ “ “ Cow	“	“ 1272
“ “ “ Sheep	“	“ 1306
“ “ “ Dog	“	“ 1342



GENERAL INTRODUCTORY REMARKS.

Progress of Medicine.

MEDICINE may be divided into a science and an art. It is a science as it presents facts and evolves principles; an art as it consists of rules for practice. For its present attainments, it is indebted partly to researches scientifically conducted, and partly to empirical and haphazard discovery.

As a science, medicine is chiefly indebted, and must ever be, to the members of what is called the "regular profession." This body of men, while it contains numerous persons whose talents and attainments do not raise them above the merest quacks, does yet embrace large numbers of men who are alike ornaments of the race, and lights of their profession. It is to the writings of this class that every student must go who would qualify himself for the proper discharge of the duties of a physician; and he who attempts the practice of medicine without a knowledge of standard medical writings is either a fool or a knave — either without the brains to understand science, or destitute of the honesty to deal fairly with men.

While this is said, however, it must be granted that a respectable portion of the facts which make up the science of medicine have been contributed by the industry of men who have not had what is called a regular standing in the profession. I am sorry to be obliged to add that the great body of this class have been quacks and charlatans, while only a few of them have had talents and acquirements.

Nevertheless, they have been too indiscriminately condemned. Their labors have been useful in various ways, and have contributed to the advancement of medical knowledge. A regard for truth, not less than justice to these persons, requires this statement.

One-Idea Men.— The "irregulars," as they have been called, have generally had their hobbies, which they have ridden with singular diligence, and often in little better than John Gilpin plight. Yet they have drawn attention to great truths, which the regular profession either did not see, or would not commend; and they have done this by dwelling incessantly upon some *single idea*.

The one-idea men, of every class, have been ridiculed in all ages; and indeed have always exhibited some singular obliquities. Yet when they have been men of learning and talents, they have accomplished great things, either for good or evil.

Martin Luther was strictly a one-idea man. The whole force of his extraordinary character was given to the propagation of the single doctrine of justification by faith; and by the incessant efforts he made for this purpose, he sank the doctrine deeper into the heart of Europe than a hundred equally powerful men could have done by giving it only an ordinary share of attention.

William Ellery Channing was a one-ideaist. *Man*, the noblest work of creation, to be developed, educated, adorned, loved, made like unto God, was the thought of his life, — a thought which he embellished and moulded into all the forms of beauty which our flexible language is capable of producing. Under the mild promptings of his genius, and the workings of this thought, philanthropy, quickened into a new life, spread out her arms, and embraced the world.

Sir Isaac Newton was a one-ideaist. So entirely did he devote his great powers to astronomy and the higher mathematics, that he became unfitted for the duties of social and domestic life — so unfitted, that when induced by his friends to give a little attention to courtship, he fell into one of his abstractions, and detected himself in using his lady-love's fore-finger to poke down the ashes in his pipe! But Sir Isaac advanced mathematical science to a point far beyond its previous attainments, and laid it under such obligations as no general scholar could have done.

It is in this way, though in a vastly less degree, and without the scientific method, that one-ideaists in medicine benefit the world. They seize upon some single remedy, — generally one which has been overlooked — and using it themselves to the exclusion of all others, they press it upon the world as the panacea for all its ills. With them disease is a unit, and they have found its one all-important remedy. Thus convinced, they press it upon others with the enthusiasm of fanatics. Testing it in all cases, they develop all its virtues. Those who have the good sense to turn their attention to it have only to use it in those cases for which its adaptation is proved.

It is in this way that these men become, incidentally, medical discoverers; and not being burdened with modesty, they never withhold their importunities till the world acknowledges whatever value there is in their discovery. And although they may do some mischief with the single-edged tool which they handle so industriously, I doubt if they do much more than many better workmen who use *too many*. At all events, wise and generous men thank them for their gift to the profession, small though it may be, and use it in the light of a clearer knowledge.

Hydropathy. — As an illustration of what I have just been saying, I may refer to hydropathy, or the plan of treating all diseases by water.

The singularly careful avoidance, by the whole medical faculty, for many ages, of the article of pure water as a medicinal, or, rather, health-imparting agent, was anything but creditable to the profession.

It is now admitted by all sensible men that water, cold and warm,

used at proper times and to a reasonable extent, has great power over several diseases, and is a powerful promoter of health. No physicians, except those who are too indolent to know what is going on in the world, or too fast locked in old prejudices to touch new things, now omit its use in *many* cases. How warm and sincere my own approval of water as a remedy is, almost every page of this volume will attest.

Indeed, it may honestly be allowed that the hydropathists have fairly *drowned* the almost criminal professional prejudice against water. They are in all the more need of this concession, since in their absurd zeal to cure *all* diseases by water, and make aquatic animals of men, they have also drowned their own common-sense.

Homœopathy.— This mode of practice is of comparatively recent origin ; but it has already sunk itself deep into the popular heart, and has drawn to its support many of the wealthy, the cultivated, and the intelligent, in our most refined communities. I do not profess to comprehend and appreciate its principles, nor would it be honest in me to pretend to see how its infinitesimal doses can produce the results which it often shows, and which it is fair to confess look like singular success ; and saying this, I can neither adopt nor approve the violent denunciations and censures which so many are induced (by fashion, I fear) to employ towards this generally well-cultivated class of practitioners. I hold them as useful members of the profession, and mean ever to cultivate towards them fraternal feelings. They give great attention to exercise, diet, the use of water, etc., — things which contribute very powerfully to preserve health, and to restore it when lost. In this thing, the old-school practitioners ought to learn a most important lesson from them. In truth, they are learning it, but very slowly and *reluctantly*, I am sorry to say.

The central idea of the homœopathist, that “like cures like,” the “great law of cure,” as he styles it, I do not feel called upon to discuss — theories being of much less consequence than rules of practice. The old-school men have certainly much to learn from him respecting the augmented power of medicine from the greatest possible division by *trituration*. We have learned from him, too, — though many are too ungenerous to confess the source of the information, — that we may gain our purposes with much less medicine than we were once in the habit of giving.

Eclectics.— There is a large and growing class of physicians, called, at first, after the founder of the school, Thomsonians. Subsequently, they were generally known as Botanic Physicians. Now they pass under the title of Eclectics.

These men, directing their attention, at first, chiefly to cayenne and lobelia, have gradually extended their zealous researches over the vegetable kingdom, and have gathered much information worthy to be preserved. These researches have revealed a sadly neglected duty on the part of old-school practitioners.

The education and talents of this class of practitioners have gradually risen, year by year, until they have several medical schools, where students are well instructed in the principles of medicine, by men of real ability. They have also a literature of no mean significance, especially in the department of *materia medica*. The list of remedies they have given to the world, drawn from our home plants, are a boon of no small value. I regard them as equal in value to all we were previously in possession of from the vegetable kingdom. The substitution of vegetable remedies, in most cases, for mercurials, can hardly be too highly prized.

Physiologists.—Besides these various direct practitioners of medicine, there is the large and quite intelligent class of physiologists, including the phrenologists, who nearly discard medicine, and appealing to the laws of life established by the Creator, urge temperance in eating and drinking; exercise in the open air; securing of pure air by ventilating dwellings, school-houses, and churches; bathing in cold and warm water; cheerfulness of mind; and the cultivation of the Christian virtues, as the only rational modes of securing health and life.

I confess myself inclined to forgive this class their error in banishing medicine, in view of their zeal and success in disseminating hygienic information of the utmost value and importance to mankind. Put man into harmony with nature, and establish over him the empire of reason, and their theory would be excellent; but as things are, medicines, like prisons, and alms-houses, and large cities, are “necessary evils.”

Other Practitioners.—Finally, we have Mesmerists, Pathetists, Electro-biologists, Spiritualists, Nutritivists, and what not, all pretending to cure disease by processes peculiar to themselves. They are all experimenters in different departments of nature, — now spreading over our eyes a large plaster of humbuggery, and now drawing a small curtain and giving us a peep into the large and well-furnished rooms which nature has fitted up for our reception, by and by, when we are better instructed.

All Useful in a Degree.—On the whole, I am disposed to regard all the operators in the different departments of medicine as *useful in their degree*; excepting always those mercenary quacks, who lie about their remedies to make money. Each of all these (I mean all sincere and true men who believe what they teach) is aiding in some measure the general advancement. And though the truths, as they gather and present them, are but fragmentary, they are useful in the hands of those *true Eclectics*, who have the wisdom and independence to select the best things out of all systems.

General Conclusion.—This brings me to remark that there is but one truly liberal and philosophical school of medicine. It is the Eclectic, — composed of those who have liberality enough to reject

every *exclusive system*, and to select out of all systems those things which are approved by experience and reason.

I have already spoken of the school of practitioners called Eclectic. To a certain extent they are entitled to the name, but I think not entirely. They have formed a separate and exclusive school. They have turned some articles out of the *materia medica possibly* for no better reason than because their party is committed to their rejection; whereas they should have no party, but allow each man to act as if he were a citizen of the world only, and not a member of any restricted association. But I will not quarrel with them on this point. I think they are *becoming* eclectic.

Progress of Medicine.—There have been long periods when the science and the art of medicine made scarcely any progress. They are now advancing, — in some departments quite rapidly.

The Chemistry of Man, commonly called Animal Chemistry, is opening new sources of light.

The writer was in the habit of asserting, many years ago, that most of the true progress in medicine must come through Animal Chemistry; and the developments of the last few years have made good the assertion. Liebig, a diligent student in chemistry, has done much to open the way for inquirers in this department. Simon has, perhaps, done more. Mialhe is a yet later explorer, and has made valuable discoveries.

The result is that students have now before their minds, and are endeavoring to solve and act upon as fast as possible, inquiries and propositions like these:—

What is the chemical composition of the solids and fluids of the healthy human body?

What is the nature of the changes which occur in the composition of the solids and fluids during disease?

What alterations in the chemical composition of the solids and fluids take place during the operation of medicines?

Before it can exert any remote action on the animal economy, a remedy must be absorbed.

Before it can be absorbed, it must be soluble in the fluids of the living body.

Medicines are subject to chemical changes during their passage through the system.

These changes are regulated by ordinary chemical laws, and may therefore, to some extent, be foretold and made available in the cure of disease.

These chemical laws are disturbed and varied, to some extent, by the law of vitality,—just as the magnetic needle is made to vary by disturbing forces.

What are those disturbances, and to what extent, and under what circumstances, do they occur?

With these and similar inquiries and propositions before his mind.

diligently studied, a man will in time learn to prescribe with some intelligent aim. He will not know everything, to be sure, but what he does know, he will have a reason for knowing. If he give a medicine, he will have in view the chemical changes of the solids and fluids of the body, known to be produced by the disease he is combating. He will also keep in mind the solution of the medicine in the fluids of the body, and the chemical reaction between its components and the acids, alkalies, etc., found in the alimentary tube and elsewhere.

As the science of medicine advances, and becomes liberal and eclectic in its character, gathering from all systems the best attested facts, and using them to the exclusion of all mere theories, these facts must not themselves degenerate into mere petted theories, but must be held in subordination to future experience. Medical practitioners, who would meet the wants of the age, must be men of progress. The light of to-morrow, with them, must modify and improve the light of to-day. They must knock every hour for admission into some new apartment of nature.

Need of Liberality. — That medical progress may be real, physicians must be free from bigotry. They must have no narrow prejudices against any man, or class of men; but be ready to examine candidly any new thought or new remedy brought to their notice, from whatever source it may come.

They should not hedge themselves about with such restrictive by-laws and societary rules as are calculated to fetter their thoughts, and turn their investigations, by a sort of moral necessity, into the narrow channels of party conservatism; remembering that he who is once enclosed by such restrictions must hew a path for his feet through bigotry, and even malevolence itself, before he can escape them, or be a free man in any noble sense.

The members of medical societies do themselves no credit, in the nineteenth century, by putting on airs, and telling *others* to stand at a distance. This would do better, had medicine become an exact science; but while the primary effects of even *opium* are not settled — some physicians considering it as primarily stimulant, others as sedative, others as stimulant to the nerves and sedative to the muscles, others as neither, and still others as alterative, — such exclusiveness seems neither wise nor modest. When the professors of the healing art can hoard medical knowledge as misers hoard gold, and can submit its purity to equally certain tests, it will appear in better taste for them to grow exclusive. Until then, the most becoming badge they can wear is the Christian direction: "Let each esteem others better than himself."

Medical societies, with liberal by-laws, are fitted to do good; but it would be hard to show that those with stringently restrictive rules can operate otherwise than as checks upon progress. In truth, they are apt to become mere catacombs in which to embalm dead ideas.

They are very liable to be made the instruments for accomplishing the ambitious purposes of a few leading men. They tend to suppress all sympathy with everything outside their organization; and they beget a feeling like that which would forbid the fixed stars to drop their light into our atmosphere without first coming down and joining the solar system.

Conservative Leaders. — There are no influences which hold so steady a check upon medical progress as the conservative leaders in many of our medical associations. Not that they are opposed to improvement in the medical art, or would object to any amount of discovery, if it could come to the profession through channels which they have the honor of opening. But against all light from outside, or from obscure sources, they will draw down the curtains, and close the doors; and, if it chance by any means, in spite of them, to get within the sacred enclosure, they will call it darkness, and, as priests of the temple, will attempt to atone for the indignity offered to the god of medicine, and fill the whole sky with murky clouds from their altars.

These men have strong faith in caste, and in the right of the few to govern the many. In the low places of society, they look for nothing but ignorance and poverty. Notwithstanding that the light of every natural day breaks in the horizon, and *ascends*, they so far despise analogies as to insist that all medical light breaks at what they call the zenith of the profession, and *comes down*. With them the temples of Esculapius are all rebuilt, and they are the priests; and to offer in sacrifice the smallest medicinal plant is a sacrilege, unless it be entrusted to their hands.

Such persons measure and weigh a man by the amount of money he has. Property is their god, which gives laws to everything. With them, knowledge, like property, goes to posterity by will, — they being the principal testators. Like their money, too, it goes chiefly to their sons, and to certain favored institutions, by whom and in which it is to be hoarded, and whence it is to go out only in certain approved channels, weighed and stamped, like coin from the mint.

These are the men who regard knowledge as a contraband article, unless regularly entered at the custom-house, with bills of lading properly certified by the conservative magnates at some other metropolis. With them, knowledge is not like the west wind, fanning the brow of the peasant as gently as that of the king — not like the light of heaven, entering the small, clean window of the hut, as readily as the larger one of the palace; not a boon which comes alike freely to all, and which is to be everywhere amplified, changed as circumstances and conditions require, and especially adapted to the present hour. It is rather, as they too often view it, like lithographed letters of advice, printed upon stamped paper, and carefully sealed up and addressed to posterity. And then, if they can be made the mail-carriers, and be permitted to pass, unchallenged, with the precious bag, from post to post, and pass it over, carefully sealed,

to the next generation, they will think it has done its work, and that they have fulfilled their mission.

I would not be unjust or severe, but I cannot but remark further, that these men present but one view of humanity. They are monotonous objects of inspection. Look at them a thousand times, and you see only the same unaltered phase of life. To the mariner on life's ocean, they are not safe lights. If he approach them on the dark side they remain black as night to him, until he comes round to their shining front. They are not revolving lights. They have light: it may be bright and genial; but it gleams out upon the waters only in one direction. It does not sweep round, and throw its rays upon every mariner's path.

Such men are useful, but only to a certain class. They have in them no true *omnilogy*—they are not *all-teaching*. Their lives are instructive to their friends, their clique, their party, their school; but a stumbling-block, a hindrance, an oppression, an offence to everybody else. They are like porcupines, with fronts smooth and easy of access; but their backs bristle with quills to stick into those on the wrong side. They are not whole men. Humanity has infused into them only one or two of its elements. They have length, but no breadth. They are citizens of Boston, New York, Philadelphia, or Cincinnati, but not of the world. Within certain circles, they are genial friends, but cynics and haters outside of them. From their high places they come down to their humble followers with tokens of friendly recognition; upon others they frown and lower like armed castles.

The True Physician.—How different the character of the true man and physician! He is genial in his disposition. He has no dislikes and antipathies, and hates no men except tyrants. He accepts knowledge, though it come from the humblest source; believing there is no experience but will repay a study of it, and no husbandman's ploughshare but turns up a soil worth analyzing. He belongs exclusively to no party, and can be approached easily by respectable men of every stamp. Whether belonging to the same society with him or not, you may take hold of his nature and draw it out, without having it slip from your fingers, and spring back from your presence into a thousand kinks, like an overtwisted thread. He is a whole man. God made him for the world, and not for a party. By some strong influence you may possibly, for a time, draw him from the world into some narrower sphere, but not only will his reluctant nature, like a retiring tide, run back continually to embrace the continent, but will soon break from its confinement, and, like a full sea, come back, boiling and running over.

What is now Wanted.—The foregoing remarks indicate one great leading want, in order that medical knowledge may increase. It is *liberality* in the true and full sense. We want true men in high places, who will not only *let their own light shine everywhere*, but *will cease to hinder other men's light from shining*.

Beyond this, and of nearly equal importance with it, *we want medical knowledge diffused among the people.* We want — what the world has never seen — *a popular medical literature.* We want the temples of Esculapius pulled down, and the priests turned into the streets to become teachers of the multitude, rather than worshippers in the inner sanctuary.

I know this want will be stoutly denied, but not, I think, on well-considered grounds. We do not think it necessary to confine a knowledge of the soul to the ministers of religion. There is no branch of theology which we do not deem it proper for laymen to study; we even popularize it for our children. In the obscurest towns of New England, laymen who follow the plough or push the plane, become, in many cases, eminent theologians. Why should they not study the lower science which relates to the body? They have not been able to heretofore, because its mysteries have been purposely hidden under technicalities. These coverings should be torn off.

It is said that those who begin to read upon medicine are very apt to imagine themselves afflicted with the various symptoms they find described. To some small extent this is true; but it is also true that the light they obtain relieves them from many apprehensions which their previous ignorance allowed to prey upon them; as boys lose their fears when the light of the morning changes to some familiar object the ghost of the preceding night.

Physicians oppose the popularizing of this kind of knowledge too often, I fear, upon the sordid ground of self-interest. They think their own services will be less sought.

We do not dispense with the services of ministers because the people study theology, neither shall we cease to employ teachers and practitioners of medicine when each man and woman is wise enough to study the healing art. The principal change we shall witness will be much larger attainments in knowledge among practitioners, — just as the ministers of religion now know, and are obliged to know, ten times as much as in those darker periods when the people received all spiritual knowledge from their mouths. The teachers of any art or science are obliged to keep in advance of their pupils. Let medicine become a popular study, and we shall have very few ignorant physicians, and quackery will become one of the impossibilities. Homœopathists, Eclectics, Hydropathists, and Physiologists, believe in scattering medical books, stripped of their technicalities, among the multitude, and their people purchase very few secret, advertised medicines; — these being chiefly bought and consumed by the followers of those who believe this kind of reading fosters quackery!

ANATOMY

Know Thyself

Every person should know themselves physically; therefore read carefully the following chapters—first, on Anatomy; second, on Hygiene—which are not only instructive, but interesting, and will assist very materially in avoiding and preventing disease.

ANATOMY.

ANATOMY describes the structure and organization of living beings.

Special Anatomy treats of the weight, size, shape, color, etc., of each organ separately.

General Anatomy investigates the tissues or structures from which organs are formed.

Surgical Anatomy or Regional Anatomy considers the relations of organs to one another.

Physiological Anatomy treats of the uses or functions of organs in health.

Pathological Anatomy describes the alterations made upon different organs by disease.

We shall here introduce a very brief compendium only of Special Anatomy.

It is of great consequence that every person should have some knowledge of anatomy and physiology. Self-knowledge ought to extend to the body as well as the mind. To know one's self, physically, is to gain a new insight into that wonderfully skilful adjustment of means to ends which is never absent from the works of God. Without this knowledge, one cannot know how to take care of the health; and without health, life loses most of its value.

Structure of the Body.

THE human body is composed of solids and fluids.

The fluids are most abundant in children and youth. It is this which gives softness and pliancy to their flesh. In old age the fluids are less abundant, and the flesh is more hard and wrinkled.

The fluids contain the whole body, as it were, in a state of solution; or rather, they hold the materials out of which it is manufactured.

Chemical Properties of the Body.

THE four elements, oxygen, hydrogen, carbon, and nitrogen, make up nearly the whole bulk of the fluids and soft solids of the human body. A number of other elements, chiefly in a state of combination, and in much smaller quantities, enter into several of the tissues.

Binary Compounds. — Thus, we have *carbonic acid* in blood, urine and sweat; and we have *water* universally diffused through the system, — each of these substances being a *binary* compound, that is, composed of two elements.

Compounds of more than two Elements are widely distributed over the body; as,

Carbonate of Soda in serum, saliva, bile, mucus, sweat, and tears.

Carbonate of Lime in cartilage, bone, and teeth.

Phosphate of Lime in bones, teeth, and cartilage.

Phosphate of Iron in blood, gastric juice, and urine.

Chloride of Sodium in blood, brain, muscle, bone, cartilage and pigment.

Chloride of Potassium in blood, gastric juice, milk, and saliva.

Chloride of Calcium in gastric juice.

Sulphate of Potassa in urine, gastric juice, and cartilage.

Sulphate of Soda in sweat, bile, and cartilage.

Sulphate of Lime in bile, hair, and scarf-skin.

Oxide of Iron in blood, black pigment, and hair.

Organized Compounds. — Besides the above inorganic elements and compounds, several organized substances, or *proximate elements*, as they are called, exist largely in the body. The chief of these are albumen, fibrin, gelatin, mucus, fat, and casein. Others need not be named.

Albumen is found in great abundance in the human body. It is the raw material out of which the flesh and other tissues are made. The white of an egg, which is nearly pure albumen, is a good specimen of it.

Fibrin, when removed from the human body, changes from a soluble to an insoluble state. In other words, it coagulates in a kind of net-work. Nearly the same thing takes place constantly in the living body, when the liquid fibrin leaves its soluble state, and is deposited as solid flesh. Fibrin bears the same relation to albumen that woollen yarn does to wool; it is spun from it in the busy wheel of organic life. And the flesh or muscle is related to fibrin as the cloth is to yarn; it is woven from it in the vital loom. Fibrin has been called *liquid flesh*.

Gelatin exists largely in the ligaments, cartilages, bones, skin, and cellular tissue. When dissolved, five parts in one hundred of hot water, it forms a thick jelly. *Isinglass* is a form of gelatin obtained from the air-bladder of the sturgeon and the codfish. Glue is still another form of gelatin. It is extracted from the bones, and parings of hides, and the hoofs and ears of cattle, by boiling in water. Black silk, varnished over with a solution of gelatin, forms *court-plaster*.

Mucus is a sticky fluid secreted by the gland-cells. It is spread over the surface of the mucous membranes, and serves to moisten and defend them from injury.

Fat consists of cells held together by cellular tissue and vessels, and contains glycerin, stearic acid, margaric acid, and oleic acid. It has no nitrogen. If the stearic acid be in excess, the fat is hard; if the oleic acid preponderate, it is soft. The stearine extracted from fat is used for making very hard candles.

Casein is abundant in milk and constitutes its curd. It is held in solution in milk by a little soda. When dried, it is cheese. It is found in blood, saliva, bile, and the lens of the eye. It forms the chief nourishment of those young animals which live on milk. It is found in peas, beans, and lentils. Vegetable and animal casein are precisely alike in all their properties. Fibrin and albumen contain almost exactly the same amount of oxygen, hydrogen, carbon, nitrogen, and sulphur, which is found in casein. This latter, when taken into the stomach, therefore, goes, without much change, to the formation of the albumen and fibrin of the body.

Physical Properties of the Body.

The Tissues.—The solid organized substances of which the human body is composed, are called *tissues*. There are various kinds of tissues.

The Cellular Tissue, commonly called *areolar*, is made up of small fibres and bands woven together into a sort of net-work, with numerous little spaces opening into each other. These spaces are filled with a watery fluid; and when this is greatly increased by disease, so as to cause the parts to swell, and the skin to shine, the person has anasarca, or cell-dropsy. The uses of this tissue are to give parts and organs a kind of elastic cushion to rest upon, so that they may not be bruised and injured by the shocks of life; to make a kind of safe highway for delicate vessels to pass from one part of the body to another; and to furnish a beautifully arranged lodgment for the watery fluid which gives such roundness, smoothness, and grace to the human form. The opening of the cells into each other explains the reason why feeble persons have swelled feet and ankles in the evening, and not in the morning—the fluid settling down from cell to cell, into the lowest parts, while they are up during the day, and running back to its proper place while they are lying down during the night.

The Mucous Tissue, or *mucous membrane*, lines all the cavities which communicate with the air, as the mouth, stomach, bowels, lungs, etc. It is supplied with numerous small glands which secrete a sticky kind of fluid called mucus, to protect the surface from any injury which might be inflicted by air, or by irritating substances suspended in it.

The Serous Tissue, or *membrane*, lines all the cavities which do not communicate with the air, that is, all those which are shut, and have no outward opening. The skull, the chest, and the belly are lined by this kind of membrane. The membrane itself forms a closed sac,—one layer of it being attached to the cavity it lines, while the other is folded back upon and around the contents of the cavity, which are left outside of the sac. A watery fluid oozes from the inner surface of the sac, to make its sides glide easily upon each other. When some disease causes this water to be poured out too freely, so as to fill or partly fill the cavity, we have dropsy of the brain, or chest, or abdomen, as the case may be.

The Dermoid Tissue covers the whole outside of the body. We call it the *skin*, or *cutis*. It is similiar in structure to the mucous membranes, which are a mere continuation of it. It is harder than the mucous membrane, because more exposed to injury. In health, it never ceases to secrete and throw off a fluid which we call insensible perspiration while it is in the form of an invisible vapor, and perspiration, or sweat, when it is so increased as to be seen. So great is the sympathy between this dermoid covering of the body and the mucous membranes, that when it is *chilled* so as to stop the invisible perspiration, the internal membrane becomes affected, and we have a sore throat, or diarrhoea, or running at the nose; that is to say, when the skin cannot sweat, the mucous membrane begins to sweat.

The Fibrous Tissue consists of closely united fibres, and for whatever purpose used, forms a fine, dense, and enduring body. In some cases it takes the form of a membrane, as the *dura mater*, which lines the interior of the skull and spinal column. The *ligaments* which hold the bones together, and the *tendons* or *cords*, which fasten the muscles to the bones, are fibrous bodies. It is this firm substance of which rheumatism frequently takes hold, and this is the reason why it lingers so much about the joints. It sometimes takes hold of the ligament which fastens the deltoid muscle to the bone of the upper arm, about two-thirds of the way from the elbow to the shoulder. This muscle *lifts up* the arm. In this form of rheumatism, therefore, the arm hangs helpless at the side.

The Cartilaginous Tissue covers the ends of the bones where they come together to make a joint. It is well fitted to make the joint work easy, being smooth, hard, and elastic.

The Osseous or Bony Tissue varies in its composition, density, and strength, according to the age of the person, and the uses of the bone.

The Muscular Tissue, or *muscle*, being made for a great deal of pulling and lifting, is formed something like a rope, except that there is no twisting. Many small fibres or filaments unite to form fasciculi. A fasciculus is a bundle of fibres surrounded by a delicate layer of cell-tissue called *sarcolemma*, — just as a cord is a number of smaller threads of cotton or hemp bound together. A number of these fasciculi united together make a muscle, — just as several cords, called strands, twisted together, make a rope. Figure 1 gives us a good view of the fibres and bundles, highly magnified.

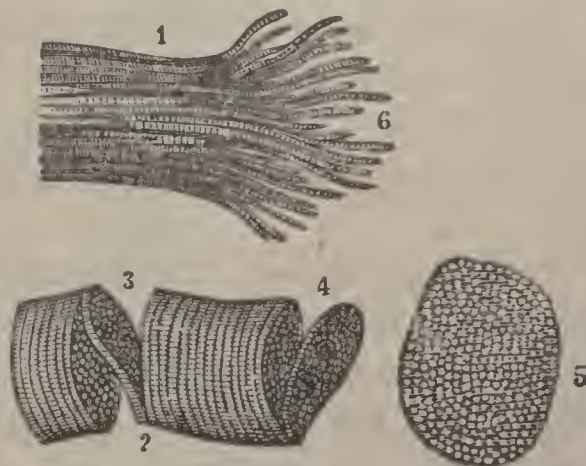


FIG. 1.

The Adipose Tissue is the material which the human body works up into pots and cells containing *fat*. It is found chiefly under the skin and muscles of the belly, and around the heart and kidneys. By the increase of this tissue, persons may become enormously enlarged without having their muscles at all increased in size. Such a condition is to be deplored, — the body having become merely the storehouse or depot of myriads of pots of fat.

The Nervous Tissue is composed of two distinct kinds of matter, — the one gray and pulpy, called *cineritious*, the other white and fibrous, called *medullary*. The external part of the brain and the internal portion of the spinal cord are composed of the gray or ash-colored tissue; the nerves are made only of the white or fibrous matter, and are inclosed in a delicate sheath called *neurilemma*.

Vital Properties of the Body.

BODIES begin their growth with a simple *cell*, which is a delicate little bladder or shut sac. Cells take their rise in that portion of the blood which is capable of being *organized*, and which is called *blastema*.

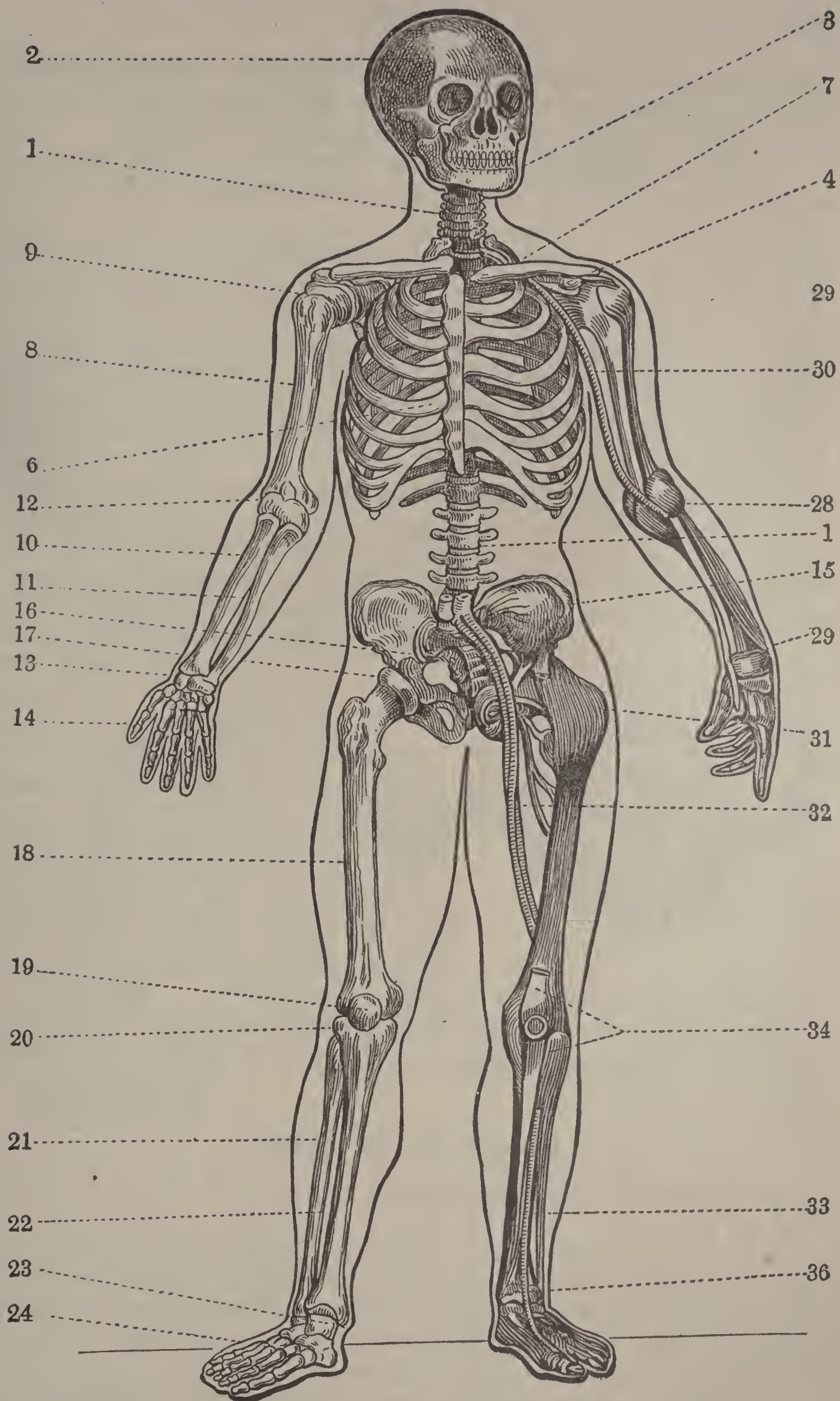
In animal bodies each cell generally begins as a minute point in the blastema, and grows until a transparent bladder or vesicle springs out from one side of it, and soon appears to enclose it. The bladder is then called the cell, and the point or dot is its *nucleus*. Within this nucleus appears another dot, which is called the *nucleolus*. When fully ripened, the cell bursts and sets the nucleus free, and this, in its turn, matures and yields up its contents. Thus all cells have their origin in germs produced by previously existing parent-cells. They are multiplied with great rapidity. Having grown to a certain extent, they lose their fluid contents, and their walls collapsing or coming together, they form simple membranous discs. In this way, with some variations, the simple tissues of the body begin to be, and the foundation is laid for the noble structure of man.

Anatomy of the Bones.

THE human skeleton is composed of two hundred and eight bones, the teeth not included.

When fastened together by natural ligaments, the bones are said to form a *natural skeleton*; when attached by wires, an *artificial skeleton*.

In Figure 2, — 1, 1, represent the spinal column; 2, the skull; 3, the lower jaw; 4, the breast-bone (sternum); 6, the ribs; 7, the collar-bone; 8, the bone of the upper arm (humerus); 9, the shoulder-joint; 10, the radius; 11, the ulna; 12, the elbow-joint; 13, the wrist; 14, the hand; 15, the haunch-bone; 16, the sacrum; 17, the hip-joint; 18, the thigh-bone; 19, the knee-cap (patella); 20, the knee-joint; 21, the fibula; 22, the tibia; 23, ankle-joint; 24, the foot; 27, 28, 29, the ligaments of the shoulder, elbow, and wrist:



30, the large artery of the arm; 31, the ligaments of the hip-joint; 32, the large blood-vessels of the thigh; 33, the artery of the leg; 34, 35, 36, the ligaments of the knee-cap, knee, and ankle.

The protuberances or swellings in certain parts of the bones are called processes, and are the points to which muscles and ligaments are fastened.

The bones are supplied with nutritive vessels, and, like other parts of the body, are formed from the blood. At first they are comparatively soft and cartilaginous. After a time, in the young animal, they begin to change to bone at certain places, called *points of ossification*. They are covered with a strong, fibrous membrane called the *periosteum*. A somewhat similar covering upon the cartilages has the name of *perichondrium*, and that which covers the skull is the *pericranium*.

The bones are compounded of earthy and animal matter. From the former — phosphate and carbonate of lime — they receive their strength; from the latter — cartilage — they derive their life.

Put a bone for a few days into diluted muriatic acid, — one part of acid to six of water, — and the phosphate and carbonate of lime

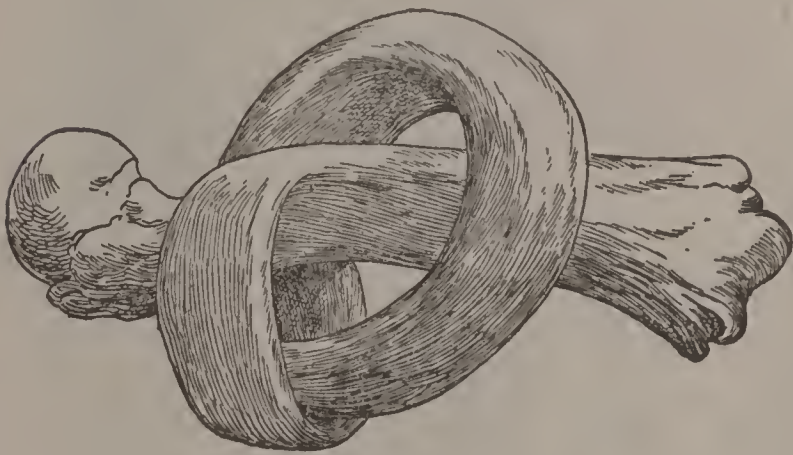


FIG 3.

will all be removed, while the bone will remain the same in shape. It will now be comparatively soft, and may be bent, or even tied into a knot without breaking. Place a similar bone in the fire for a few hours, and it will also retain its shape, but the cartilaginous portion will be gone. It is now brittle, and may be

picked in pieces with the fingers.

The bones are divided into those of the head, *thirty*; of the body, *fifty-four*; of the upper limbs, *sixty-four*; and of the lower limbs, *sixty*.

Bones of the Head.

THE bones of the head are divided into those of the *skull*, the *ear*, and the *face*.

The skull has eight bones. They are composed of two plates, one above the other, with a *porous* partition between. These two plates are capable of giving the brain very powerful protection against injury, the outer one being fibrous and *tough*, — the inner one, hard and *glass-like*, and hence called *vitreous*.

The middle layer has the name of *diploe*. Its spongy nature deadens the jar from a blow inflicted upon the outer table. In early life, when the bones are tender and yielding, this porous layer is not needed, and is not found.

That the bones of the skull may not easily slip by each other, and get out of place, they are *dovetailed* together in curious lines called *sutures*. In advanced years, these generally close up, the bones uniting firmly together. In early life they are quite open, the firm bones not covering the whole brain. The opening of the coronal suture in childhood is called a *fontanelle*. It presents a soft place upon the top of the head, where the finger could be pressed down into the brain. In Figure 4, — 1, 1, show the coronal suture on the front and upper part of the skull; 2, the sagittal suture on the top of the skull; and 3, 3, the lambdoidal suture, running down on each side of the back part of the skull.

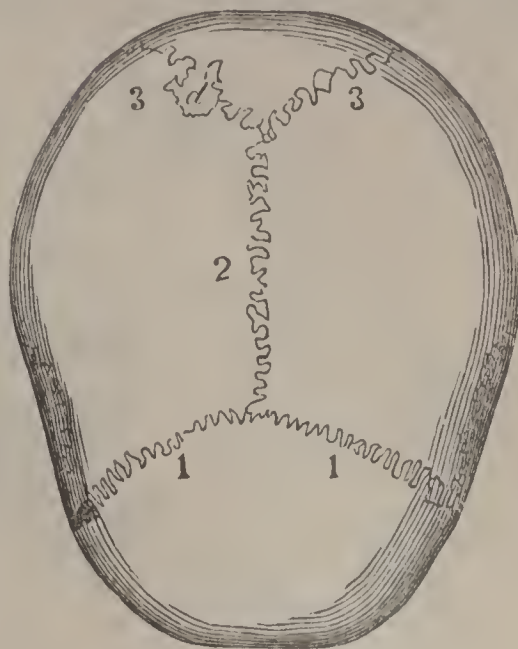


FIG. 4.

Figure 5 shows the skull-bones separated from each other at the sutures: 1, the frontal bone; 2, the parietal; 2, the occipital; 4, the temporal; 5, the nasal; 6, the malar; 7, the superior maxillary; 8,

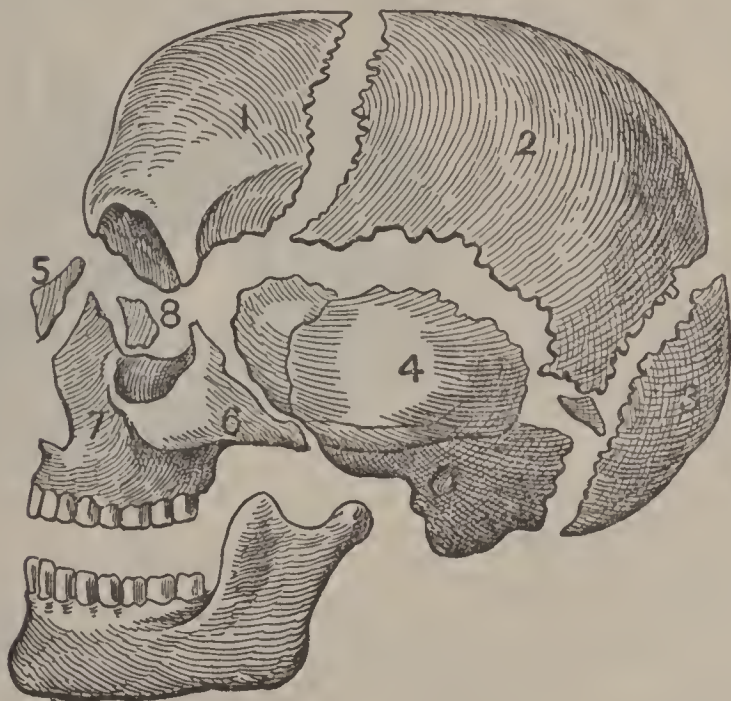


FIG. 5.

the angular; 9, the inferior maxillary. Arnott has demonstrated that the form of the skull is the best possible for sustaining weights, and resisting blows. The summit of the head is a complete arch, like that of a bridge.

The ear has four small bones, which aid the sense of hearing.

The bones of the face are fourteen in number. They hold the soft parts in place, and aid in grinding the food.

Bones of the Trunk.

IN the trunk there are twenty-four ribs; twenty-four pieces in the backbone or spinal column; four bones in the pelvis and hips; one breast-bone, called sternum; and a bone at the base of the tongue, called os hyoides. They are so put together as to form two great cavities, namely, the thorax or chest, and the abdomen or belly.

The *ribs*, connecting with the backbone behind and the breast-bone in front, form the thorax, which contains the lungs and heart. Fig.

6 shows the natural form of the healthy chest: 1, is the spine; 2, 2, the collar-bones; 3, 3, the seven upper, or true ribs; 4, 4, the five lower or false ribs; 5, the breast-bone, to which the true ribs are

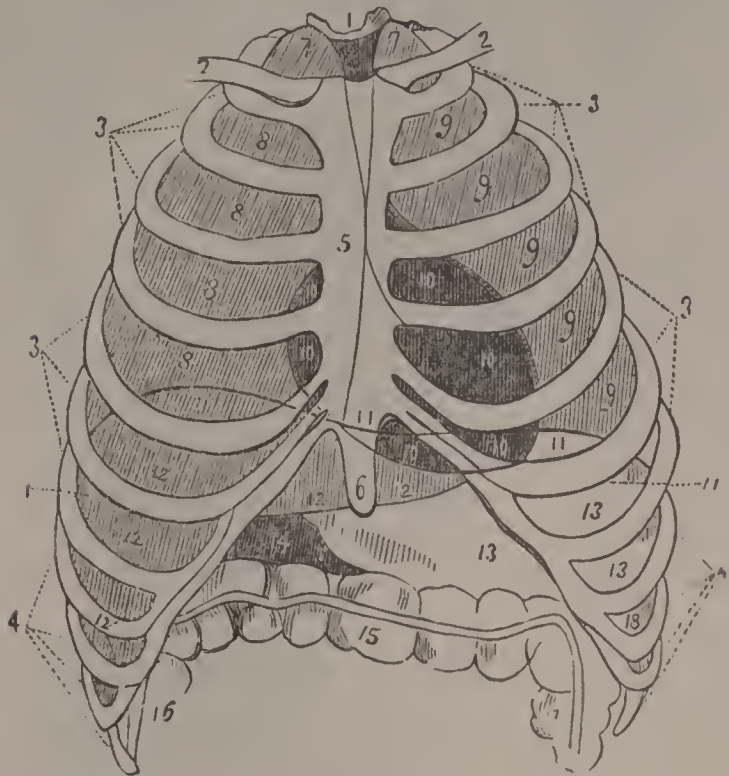


FIG. 6.

united; 6, the sword-shaped cartilage which constitutes the lower end of the breast-bone, called *ensiform cartilage*; 7, 7, the upper part of two lungs; 8, 8, the right lung, seen between the ribs; 9, 9, the left lung; 10, 10, the heart; 11, 11, the diaphragm, or midriff; 12, 12, the liver; 13, 13, the stomach, 14, 14, the second stomach, or duodenum; 15, the transverse colon; 16, the upper part of the colon on right side; 17, upper part of colon on left side.

Each piece of the spinal column is called a *vertebra*. Upon every one of these are seven

projections, called *processes*—a part of which are for linking the bones together, and the rest to furnish attachments for the muscles of the back.

The projections are linked together in such a way, that a continuous channel or opening runs down through the whole, in which is lodged the spinal cord, or *medulla spinalis*. This nervous cord is connected with the base of the brain, and is a kind of continuation of it.

Between all the vertebræ are certain cartilaginous cushions, which, when compressed, spring back, like India rubber, and thus protect the brain from being injuriously jarred by running, leaping, or walking.



FIG. 7.



FIG. 8.

The *pelvis* has four bones: the two nameless bones — *innominata*, the *sacrum*, and the *coccyx*. In the side of each of the nameless bones is a deep, smooth cavity, called the *acetabulum*. Into this the round head of the thigh-bone is nicely fitted. When the bone is thrown out of this cavity, the hip is said to be out of joint. The *sacrum* took its name

from the fact that the heathens used to offer it in sacrifice. With them, it was the sacred bone. The coccyx is the lower termination of the backbone. These bones are represented in Fig. 8: 1, 1, being the innominate; 2, the sacrum; 3, the coccyx; 4, 4, the acetabulum: *a, a*, the pubic portion of the nameless bones; *d*, the arch of the pubes; *e*, the union of the sacrum and the lower end of the spinal column.

Bones of the Upper Extremities.

THE *shoulder-blade* (scapula), the *collar-bone* (clavicle), the *bone of the upper arm* (humerus), the *two bones of the forearm* (ulna and radius), the *bones of the wrist* (carpal bones), the *bones of the palms of the hand* (metacarpal bones), the *bones of the thumb and fingers* (phalanges),—these are the bones of the upper limbs.

The *collar-bone* is fastened at one end to the breast-bone, at the other end to the shoulder-blade. It keeps the shoulders from dropping forward. Many persons allow it to fail of this end by getting very much bent in early life. This happens at school, when children are allowed to sit in a stooping posture. In the French, a race remarkable for a straight, upright figure, this bone is said to be longer than in any other people.

The *shoulder-blade* lies upon the upper part of the back, forming the shoulder. It has a shallow cavity (glenoid cavity), into which is inserted the head of the upper arm-bone. Several strong muscles are attached to the elevations of this bone, which keep it in its place, and move it about as circumstances require.

The *upper arm-bone* has its round head fastened in the glenoid cavity, by the strong capsular ligament, forming a joint capable of a great number of movements. At the elbow it is united with the *ulna* of the fore-arm. It is a long, cylindrical bone, represented by Fig. 9: 1, is the shaft of the bone; 2, the large, round head which fits into the glenoid cavity; 3, the surface which unites with the ulna.

Of the two bones of the fore-arm, the *ulna* is on the inner side, and unites with the humerus, making an excellent hinge-joint. The other bone of the fore-arm, the *radius*, lies on the outside of the arm,—on the same side with the thumb,—and unites, or articulates, as we say, with the bones of the wrist. In Fig. 10: 1, is the body of the ulna; 2, the shaft of the radius; 4, the articulating surface, with which the lower end of the humerus unites; 5, the upper extremity of the ulna, called the olecranon process, which forms the elbow-joint; 6, the point where the ulna articulates with the wrist.

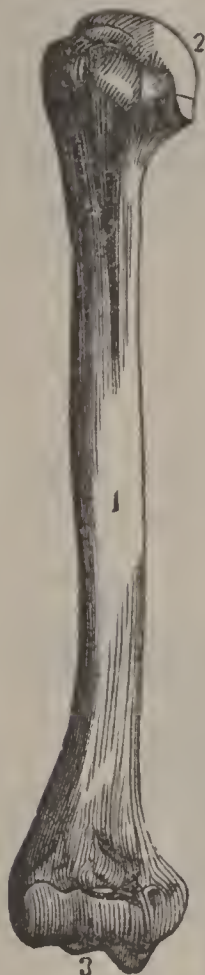


FIG. 9.

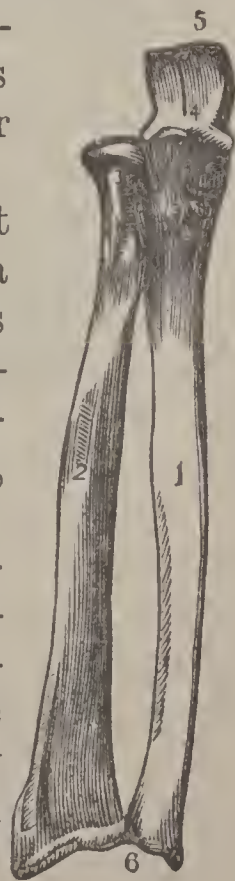


FIG. 10.

The eight bones of the *wrist* or carpus are ranged in two rows, and being bound close together, do not admit of very free motion. In Fig. 11: s, is the scaphoid bone; L, the semilunar bone; C, the cuneiform bone; P, the pisiform bone; T, T, the trapezium and trapezoid bones; M, the os magnum; U, the cuneiform bone. The last *four* form the second row of carpal bones. 11, 11, are the metacarpal bones of the hand; 2, 2, the first range of the finger-bones; 3, 3, the second range of finger-bones; 4, 4, the third range of finger-bones; 5, 6, the bones of the thumb.

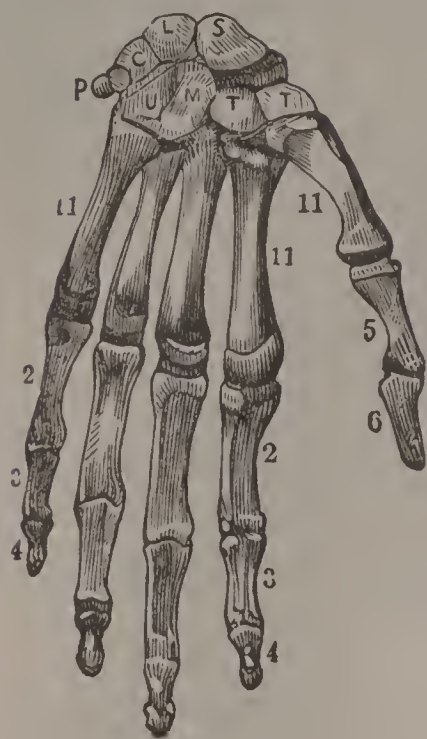


FIG. 11.

Of the five metacarpal bones, four are attached below to the first range of the finger-bones, and the other to the first bone of the thumb, while the whole are united to the second range of the carpal bones above.

Bones of the Lower Extremities.

THESE are the *thigh-bone* (femur), the *knee-pan* (patella), the *shin-bone* (tibia), the *small bone of the leg* (fibula), the *bones of the instep* (tarsal bones), the *bones of the middle of the foot* (metatarsal bones), and the *bones of the toes* (phalanges).

The *thigh-bone* is the longest bone in the system. Its head, which is large and round, fits admirably into the cavity in the innominatum, called acetabulum, and forms what is called a ball-and-socket joint. In Fig. 12: 1, is the shaft of the thigh-bone (femur); 2, is a projection called the trochanter minor, to which some strong muscles are attached; 3, is the head of the femur, which fits into the acetabulum; 5, is the external projection of the femur, called the external condyle; 6, the internal condyle; 7, the surface which articulates with the tibia, and on which the patella slides.

The *knee-pan* or *knee-cap* (patella) is placed on the front of the knee, and being attached to the tendon of the extensor muscles above, and to the tibia by a strong ligament below, it acts as a pulley in lifting up the leg.

The *shin-bone* (tibia) is the largest of the two in the lower leg, and is considerably enlarged at each end.

The small bone of the leg (fibula) lies on the outside, and is bound to the larger bone at both ends. Fig. 13 shows the two bones of the leg: 1, being the tibia; 5, the fibula; 8, the space between the two; 6, the junction of the tibia and fibula at the upper extremity; 3, the internal ankle; 4, the lower end of the tibia that unites

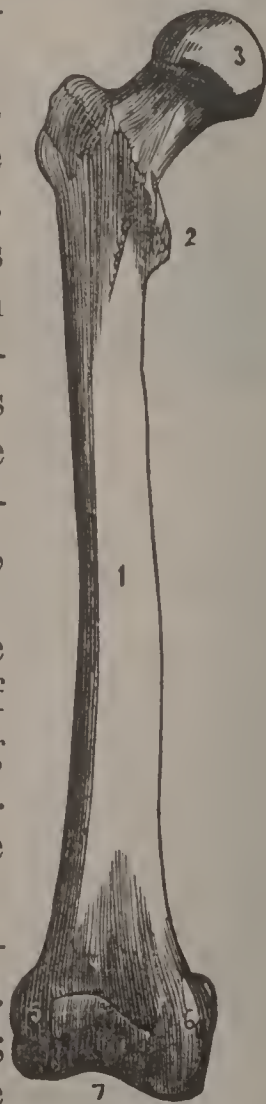


FIG. 12.

with one of the tarsal bones to form the ankle-joint; 7, the upper end of the tibia, which unites with the femur.

The *instep* (tarsus) has seven bones, which, like those of the wrist, are so firmly bound together as to allow but a limited motion.

The *metatarsal bones*, corresponding with the palm of the hand, are five in number, and unite at one end with the tarsal bones, and at the other with the first range of the toe-bones.

The tarsal and metatarsal bones are put together in the form of an *arch*, the spring of which, when the weight of the body descends upon it in walking, prevents injury to the organs above. (Fig. 14.)

The *phalanges* have fourteen bones. The great toe has two ranges

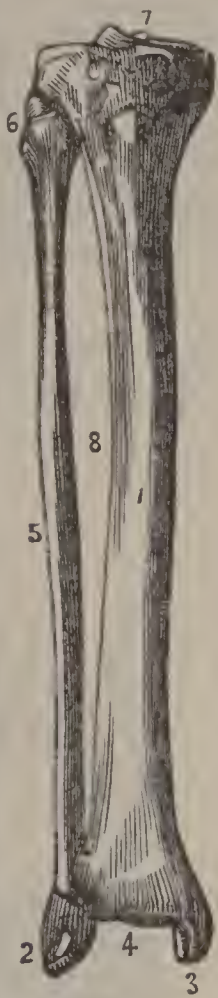


FIG. 13.



FIG. 14.

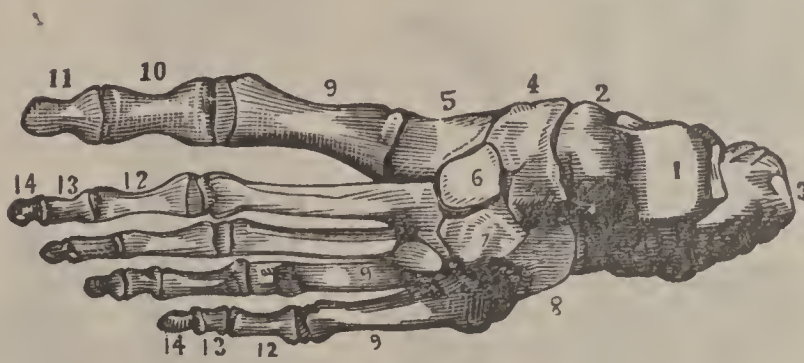


FIG. 15.

of bones; the other toes have three. Fig. 15 gives a view of the upper surface of the bones of the foot: 1, is the surface of the astragalus where it unites with the tibia; 2, the body of the astragalus; 3, the heel-bone (os calcis); 4, the scaphoid bone; 5, 6, 7, the cuneiform bones; 8, the cuboid; 9, 9, 9, the metatarsal bones; 10, the first bone of the great toe; 11, the second bone; 12, 13, 14, three ranges of bones forming the small toes.

The Joints.

THAT bones may be of any use, they must be jointed together. Joints are of the greatest importance. It is necessary they should be so constructed that there shall be no harsh grating of the bones upon each other, and no injurious jars in walking, etc. To prevent these things, a hard, smooth, and yet yielding, cushion-like substance is

required between them in joints. Such are the *cartilages*. Fig. 16 gives a specimen of these intervening cartilages.

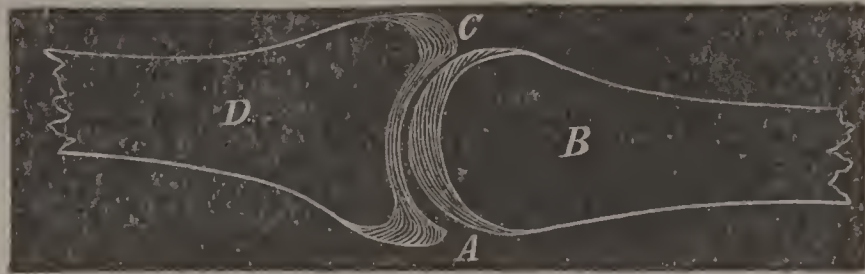


FIG. 16.

D, is the body of a bone, at the end of which is a socket; C, the cartilage lining the socket, thin at the sides and thick in the centre; B, the body of a bone, at the end of which is a round head; C, the investing cartilage, thin at the sides and thick in the centre.

Cartilage grows thinner, harder, and less elastic in old age. Hence old people are not quite as tall as in middle life, and a little stiffer in their joints.

The *synovial membrane* is a thin layer covering the cartilage, and being bent back upon the inner surface of the ligaments, it forms a closed sac. From its inner surface a sticky fluid oozes out, which helps the joints to play easily.

There are other smaller sacs connected with the joints, called *bursa mucosæ*. They secrete a fluid similar to that from the synovial membrane.

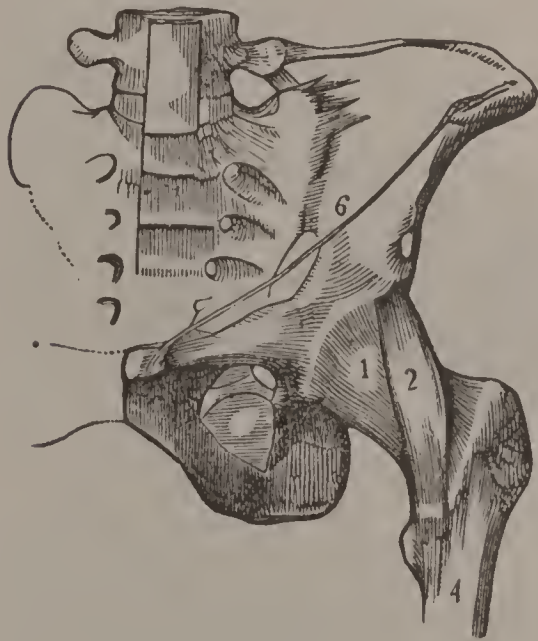


FIG. 17.



FIG. 18.

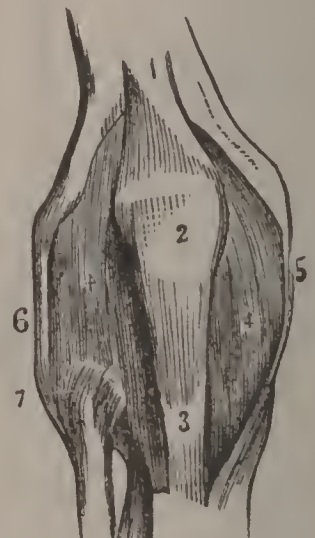


FIG. 19.

The ligaments. To retain the bones in their places at the joints, some strong, flexible straps are required to stretch across from one to the other, and to firmly unite them. Such are the ligaments.

They are the pearl-colored, lustrous, shining parts about the joints, in the form of straps and cords. There are a number of them so woven together as to form a complete covering of the joint, called a capsular ligament. In Fig. 17: 1, 2, are ligaments extending from the hip-bone, 6, to the femur, 4. In Fig. 18: 1, is the socket of the hip-joint; 2, head of the femur, lodged in the socket; 3, the ligament within the socket. In Fig. 19: 1, is the tendon of the muscle which extends the leg; 2, the knee-cap (patella); 3, the anterior ligament



MUSCLES OF THE HUMAN BODY.

of the patella; 6, the long external lateral ligament; 4, 4, the synovial membrane; 5, the internal lateral ligament; 7, the anterior and superior ligament that unites the tibia with the fibula.

Uses of the Bones.

THE bones are to the body what the frame is to the house. They hold up and retain the other parts in their proper places. They furnish points of attachment for the muscles, to hold the body together and to give it motion. They also furnish strong, bony cavities for the lodgment and protection of such delicate organs as the eye, the brain, and the heart.

A single bone, examined by itself, might not seem to have much beauty or design about it; it might even look clumsy and misshapen. But when all the bones are inspected with reference to each other, we immediately discover a general plan upon which they are made, and are compelled to admire their beautiful harmony, and the symmetrical grace with which they act. They show us that God can command our wonder, even in the bony frame of our bodies.

The Muscles.

THAT part of the animal's body which we call lean meat is composed of muscles. We have already explained that muscles are composed of threads, etc., put together in great numbers, forming bundles. So numerous are these threads and bundles in some cases, that the muscles which are composed of them have a strength truly wonderful.

Toward the end of the muscle, the fibres cease, and the structure is so modified as to become a white cord of great density and strength. This cordy substance is fastened to the bone so strongly, that it is impossible, except in some rare cases, to detach it. Generally the bone will sooner break than this attachment will give way. Sometimes this cord spreads out like a membrane. It is then called *fascia* or *aponeurosis*.

The fibres of a muscle have the peculiar property of *contracting* under a nervous stimulus sent to them by the will. These contractions cause them to act as pulleys, and to move the bones, and consequently the limbs and body, in such direction as the will commands. This is the special use of the muscles. All our movements are caused by them. They pull us about, not blindly and at a random, but under the direction of an intelligent will.

The manner in which a muscle acts, with the cord attached, may be seen by examining the leg or "drum-stick" of a fowl. If the cord on one side be pulled, the claws are shut; if that upon the other side be drawn, they will open. If both be pulled, they are held fast in one position, neither opening nor shutting.

An examination of a piece of boiled lean meat will show the

threads of which it is composed. With proper instruments, these may be unravelled, as it were, until fibres will be found not larger than a spider's web. These, covered with sheaths of great delicacy, extend beyond the fleshy fibre, and with the cell-substance connecting the fibres, are condensed into tendon.

Millions of these sheathed fibres are gathered into a bundle, and covered with a sheath, and thus form what is called a *fasciculus*. A muscle is a number of these fascicula made into a bundle, and covered with a sheath called a *fascia* (Fig. 1).

The arm is a number of muscles bundled together, and covered, likewise, by a fascia.

The fibres in a fasciculus being parallel, act together. But the fasciculous bundles which make up a muscle act in various ways.

Shape of the Muscles. — Some muscles are fusiform or spindle-shaped, so that the attachment occupies but a small space (Fig. 20).

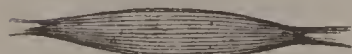


FIG. 20.

Other muscles are radiate or fan-shaped (Fig. 21). Such is the temporal muscle, the thin edge of which is attached to the side of the head, without producing an elevation or deformity.

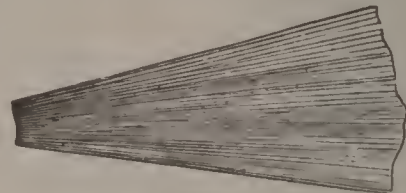


FIG. 21

In some cases the fasciculi are arranged upon one or both sides of a tendon. In this way a great number may concentrate their action upon

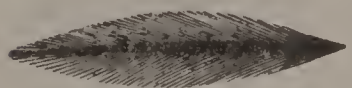


FIG. 22.

a single point. Such muscles are called *penniform*, — being shaped like a feather (Fig. 22).

In other instances, the fasciculi form circular muscles, — *orbiculares*, or *sphincters*, as they are called. These surround certain openings into the body, which they are designed to close, either in whole or in part. They surround the eyelids, the anus, the mouth of the womb, etc. (Fig. 23).



FIG. 23.

In still other instances the fasciculi are ranged side by side in rings, forming muscular tubes. By the successive contraction of these rings, any substance is driven

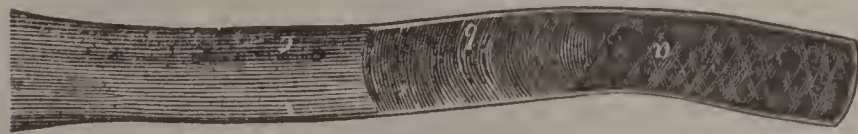
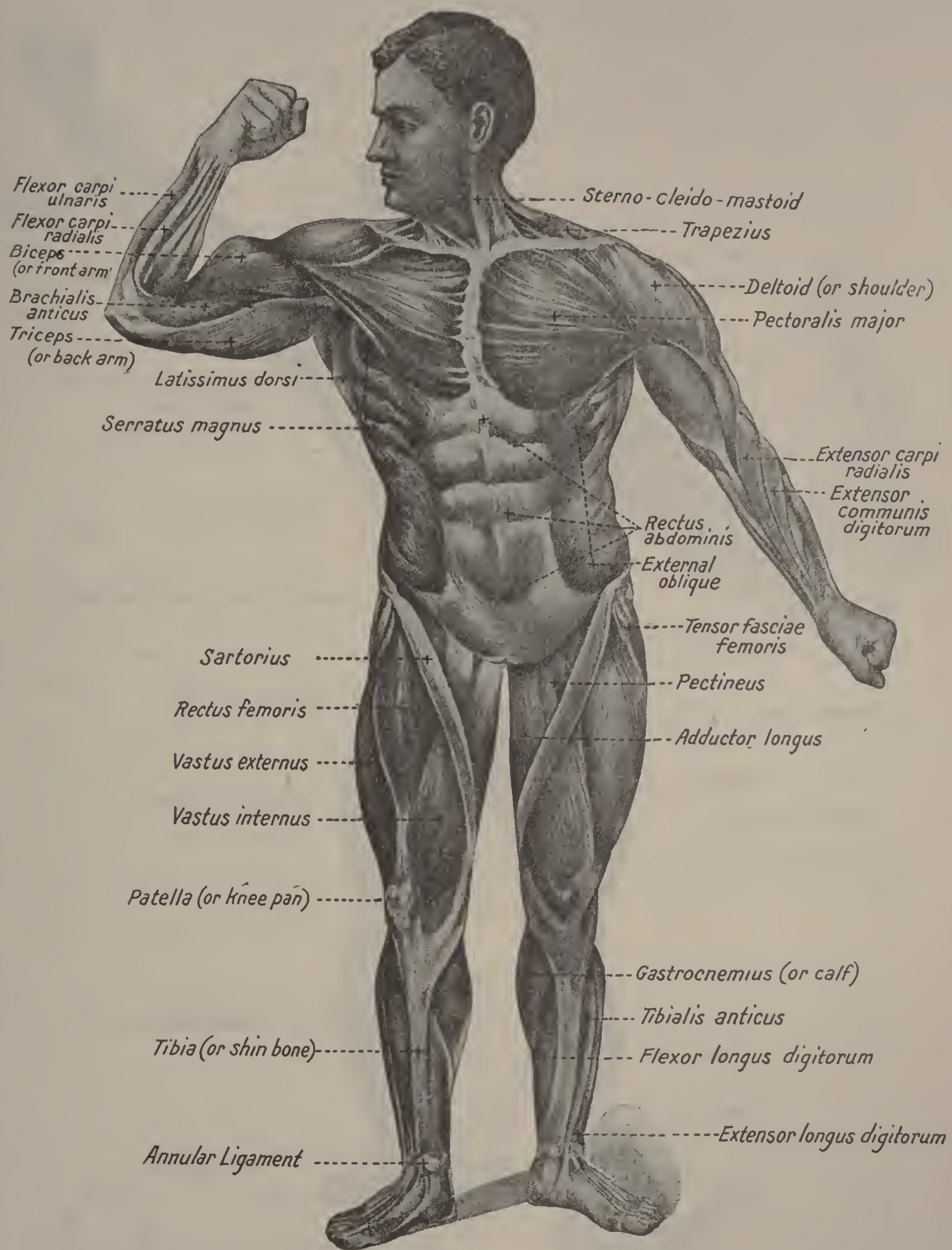


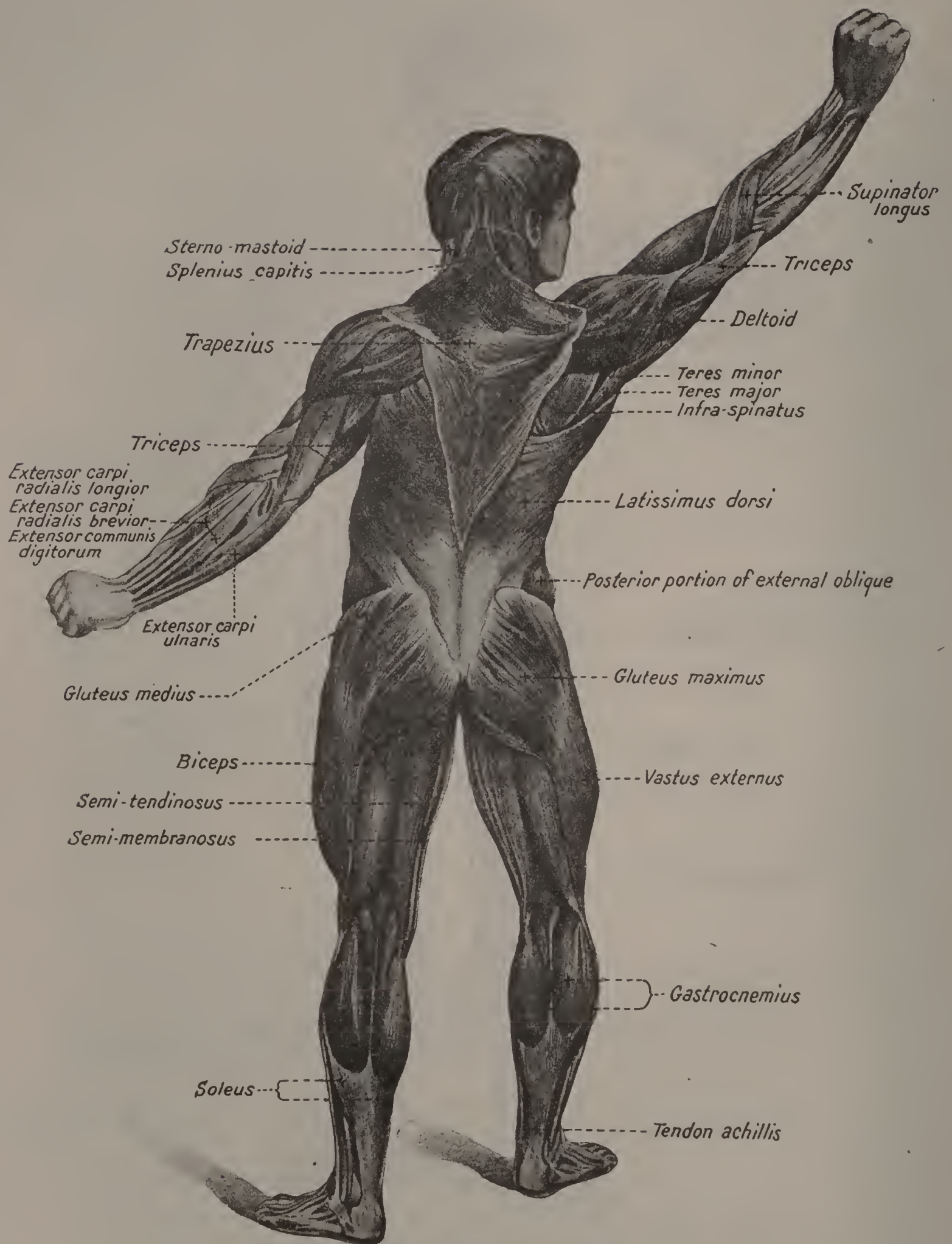
FIG. 24.

through the tube, — as food or drink through the gullet of a cow. Fig. 24 is a section of the gullet: *a*, *b*, show the circular fibres; *c*, the longitudinal.

Sometimes the fasciculi curve around in parallel layers or interlace with each other, forming a bag or pouch. By the contraction of these fasciculi, the contents of the bag will be turned from side to side as in the case of the stomach, or driven out, as in that of the heart. Fig. 25 shows the muscles of the stomach: *L*, represents the fibres running in one direction; *C*, in another; *E*, lower end of gullet; *O*, pylorus; *D*, beginning of duodenum, or second stomach.



The Muscles of the Human Body.



The Muscles of the Human Body.

Number of Muscles. — The muscles of the body are as numerous as the ropes of a ship, — there being five hundred or more. Some anatomists reckon more, some less.

They are divided into those of the *head* and *neck*, those of the *trunk*, those of the *upper extremities*, and those of the *lower extremities*.

They are too numerous to be named and individually described in this brief account of them. A part of them are voluntary, that is, under the control of the will; while another part are involuntary, moving without reference to the will. The heart is of the latter kind, it being necessary for it to keep moving when the will and mind are asleep.

On the back there are six layers of muscles, one above another. Such a number are necessary to perform the numerous movements of the back, neck, arms, etc. Every expression of the human face, as joy, sorrow, love, hate, hope, fear, etc., is produced by the gentle pulling of muscles, made expressly to indicate these emotions.

The *diaphragm* is a large flat muscle, reaching across the great cavity of the body, and dividing the chest from the abdomen. It is penetrated by the gullet going to the stomach, and by the great blood-vessels leading to and from the heart. It is shaped like the cover of a dinner-dish, the convex surface being turned up. When the breath is drawn in, it sinks down towards a level, thus enlarging the chest at the expense of the belly. When the breath is thrown out, the reverse takes place.

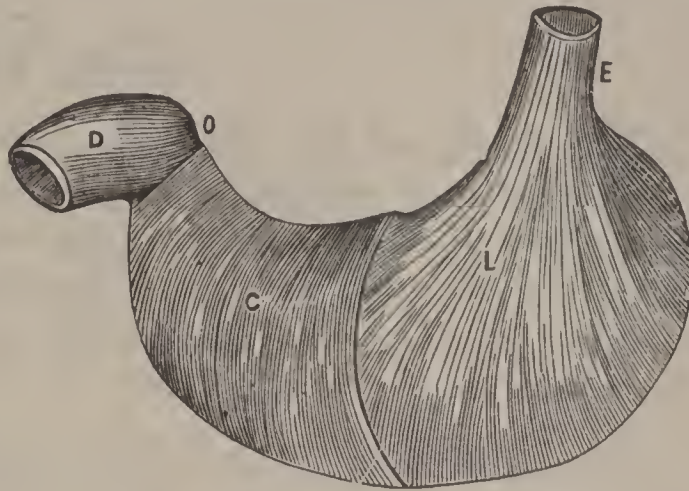


FIG. 25.

Mode of Action. — The *contractibility* of a muscle, of which I have spoken, is simply its power of *shortening* itself. The hand is raised

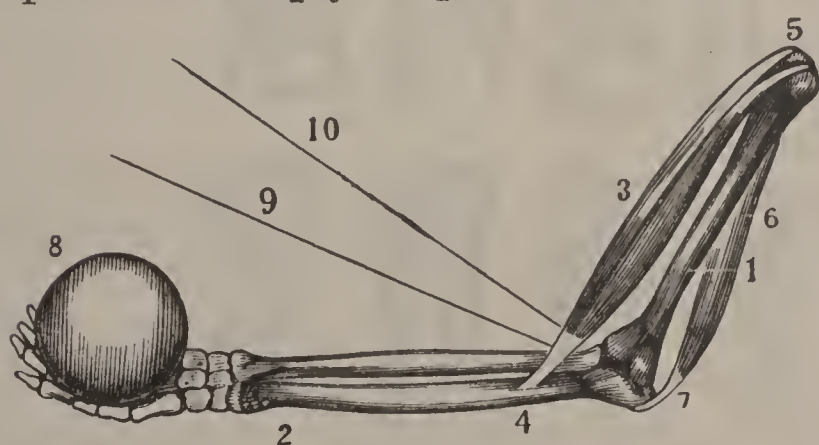


FIG. 26.

5 by the shortening of a muscle in front, attached to the bone above the elbow, and to a bone below the elbow. The contraction of an antagonistic muscle behind, also attached above and below the elbow, brings the hand back to its place. Fig. 26 shows how all joints are moved: 1, is the bone of the arm above the elbow; 2, one of the bones below the elbow; 3, the muscle which bends the elbow; 4, 5, attachments of muscles to bones; 6, the muscle that extends the

elbow; 7, attachment to elbow; 8, weight in hand. The muscle, 3, contracts at the central part, and brings the hand up to 9, 10.

The complication, variety, and swiftness of motion, executed by muscles, are past conception. Every movement which a human being makes, from the heavier motions of the farmer in cultivating his fields, up to the magic touches of the painter's brush, and the methodical frenzy with which the great master's fingers sweep the piano, are all made by muscles obeying an intelligent will.

The Teeth.

THE teeth are not like other bones, either in composition, method of nutrition, or growth. When broken they do not unite, not being furnished with the necessary power of reproduction of lost parts.

Both the upper and lower teeth are set into bony sockets, called alveolar processes. These, with the fibrous gums, give the teeth a very firm setting.

Origin.—The teeth have their origin in little membranous pouches within the bone of the jaw, which, in their interior, have a fleshy bud. From the surface of this the bone or ivory exudes. The tooth and the bony socket are developed and rise up together, — the former, when sufficiently long, pushing itself through the gum.

Number.—The first set of teeth are only temporary, and are called *milk-teeth*. There are but twenty of them. Between the age of six and fourteen, these become loose, and drop out, and the permanent teeth appear in their places. Of these there are thirty-two, sixteen in each jaw.

Names.—The four front teeth in each jaw, *a, b*, Fig. 27, are the *cutting teeth* (incisors); the next one, *c*, is an *eye-tooth* (cuspid); the

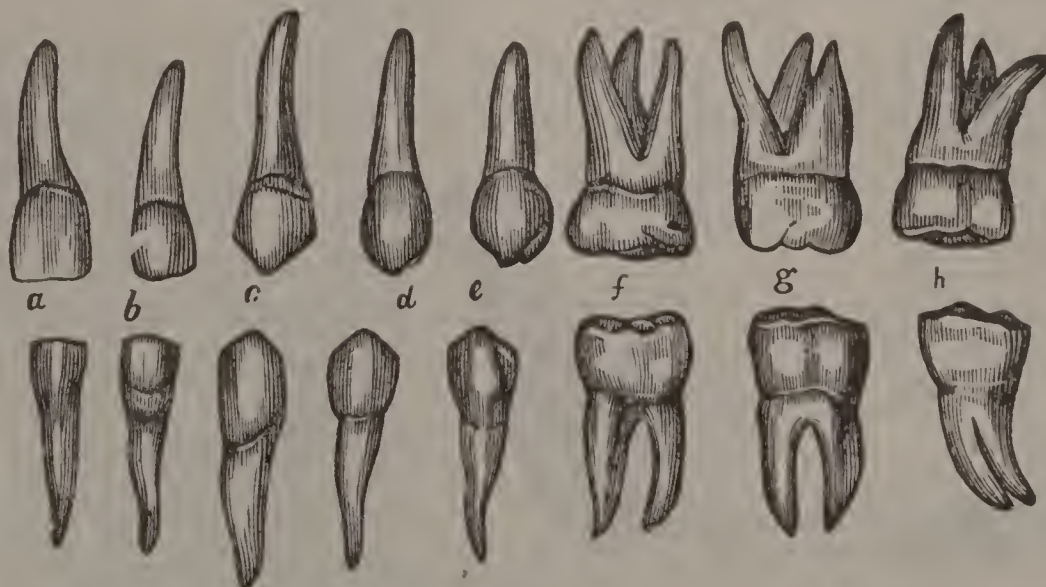


Fig. 27.

next two, *d, e*, are *small grinders* (bicuspid); the last three, *f, g, h*, are *grinders* (molars). One appears late on each side, from the age of twenty to twenty-four, and is called *wisdom tooth*.

Composition.—A tooth is composed of *ivory* and enamel. The internal part is ivory, which is harder than bone. The coating upon the surface is *enamel*, which is still harder than ivory. That part which rises above the jaw-bone is called the *crown*; it is this only which is covered with enamel. The part within the jaw is called the *root* or *fang*; this is composed of bony matter, through which small vessels pass in to nourish the tooth. Small white nerves also pass into the tooth, — of the presence of which we have terrible evidence in tooth-ache.

Use of the Teeth.

THE incisors cut the food asunder; the molars break down its solid parts, and grind it to a fineness which fits it for the stomach.

In masticating the food, the lower jaw has two movements, the up-and-down motion, like a pair of shears, and the lateral or grinding motion. These two movements are performed by different sets of muscles. Flesh-eating animals have only the up-and-down motion; vegetable-eating animals have only the lateral or grinding motion; while man has both the up-and-down and the lateral. This seems a pretty clear intimation that he is to eat both flesh and vegetables.

The teeth aid us in articulating words, and they give a roundness and symmetry to the lower part of the face. When well formed, and kept in good condition, they add much to the beauty of the face, and their decay is an irreparable loss. Their proper care and treatment are spoken of in another place.

The Digestive Organs.

THE alimentary organs are the mouth, the teeth, the salivary glands, the pharynx, the gullet (*œsophagus*), stomach, bowels (intestines), chyle vessels (*lacteals*), thoracic duct, liver and sweetbread (*pancreas*).

The preparatory process of digestion, the mastication of food, takes place in the mouth, where the food is mixed with saliva, a secretion of the salivary glands. Of these glands there are six, three on each side.

The Parotid Gland lies in front of the external ear. It has a duct opening into the mouth opposite the second molar tooth of the upper jaw. This is the gland that swells in the disease called mumps. Hence the disease is also called *parotitis*.

The Submaxillary Gland is inclosed within the lower jaw, in front of its angle. Its duct opens into the mouth by the side of the bridle of the tongue (*frænum linguæ*).

On each side of this string or bridle, and under the mucous membrane of the floor of the mouth, lies the *sublingual gland*, which pours its saliva into the mouth, through seven or eight small ducts

A disease called the *frog* consists in the swelling of this gland. Fig. 28: 1, the parotid gland; 2, its duct; 3, the submaxillary; 4, its duct; 5, the sublingual.



FIG. 28.

4, 4, 4, muscles of pharynx; 5, muscles of the cheek; 6, the muscle which surrounds the mouth; 7, the muscle forming the floor of the mouth.

The Gullet or *œsophagus* is a long tube, descending behind the windpipe, the lungs, and the heart, through the diaphragm into the stomach. It is composed of two membranes laid together, like two pieces of cloth. The inner one is mucous, the outer muscular. The two sets of fibres composing the muscular coat are arranged circularly and longitudinally (Fig. 25).

The Stomach lies in the upper part of the belly, to the left, and directly under the diaphragm. It has an upper opening, where the stomach-pipe enters it, called the *cardiac orifice*. This is the larger end of the stomach, and lies on the left side; the smaller end connects with the upper bowel, at which point it has an opening called the *pyloric orifice*. In addition to mucous and muscular coats, similar to those which compose the *œsophagus*, the stomach has still another over both, a *serous* coat, very strong and tough, to give this working organ additional endurance. Within, it has many glands to secrete the gastric juice.

The Intestines, or *alimentary tube*, or *bowels*, are divided into the *small* and *large* intestines.

The small intestine has a length of about twenty-five feet, and is divided into three parts, — the *duodenum*, the *jejunum*, and the *ileum*.

Of these three divisions, the *duodenum* is the largest, and is about

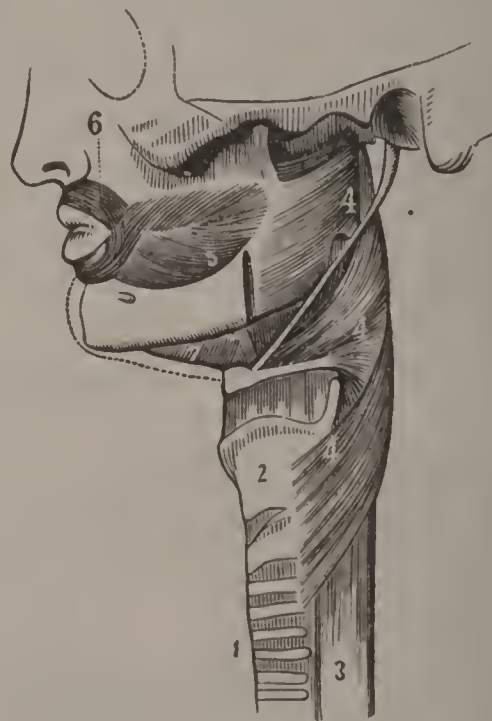


FIG. 29.

a foot in length. It begins at the pyloric orifice of the stomach, and passes backward to the under surface of the liver, whence it drops down perpendicularly in front of the right kidney, and passes across the belly behind the colon, and ends in the *jejunum*.

The Jejunum continues the above, and terminates in the *ileum*.

The Ileum is a continuation of the *jejunum*, and opens, at an obtuse angle, near the haunch bone, into the *colon*. A valve is located here, to prevent the backward passage of substances from the colon into the ileum.

At this point the large intestines begin, and here is situated the *cæcum*, a blind pouch, or cul-de-sac, attached to which is the *appendix vermiformis*, a worm-shaped tube, of the size of a goose-quill, and from one to six inches long.

The Colon, or large intestine, is divided into the *ascending colon*, the *transverse colon*, and the *descending colon*.

The Ascending Colon rises from the right haunch-bone to the under surface of the liver, whence it bends inward, and crosses the upper part of the belly, below the liver and stomach, to the left side. This portion which crosses over is the *transverse colon*. From this point, on the left side, it turns down to the left haunch, and has the name of the *descending colon*. Here it makes a curve like the letter S, which is called the *sigmoid flexure*.

The Rectum is the lower portion of the large intestine, terminating at the anus.

The Lacteals are small vessels which begin in the villi, upon the mucous membrane of the small bowels. From here they pass between membranes of the *mesentery* to small glands, from which larger vessels run to another collection of glands; and after passing, for a space, from one collection of glands to another, at each stage of their progress increased in size and diminished in number, the lacteals pour their contents into the *thoracic duct*. This having passed up through the diaphragm, out of the belly, makes a sudden turn downward and forward, and empties its burden into a large vein which ends in the right heart. Fig. 30: 1, is the bowel; 2, 3, 4, the mesenteric glands through which the lacteals pass; 5, the thoracic duct; 7, the spinal column; 8, the diaphragm.

By the help of a magnifying glass, an infinite number of these small vessels may be seen starting from the rough, shaggy internal coat of the bowel.

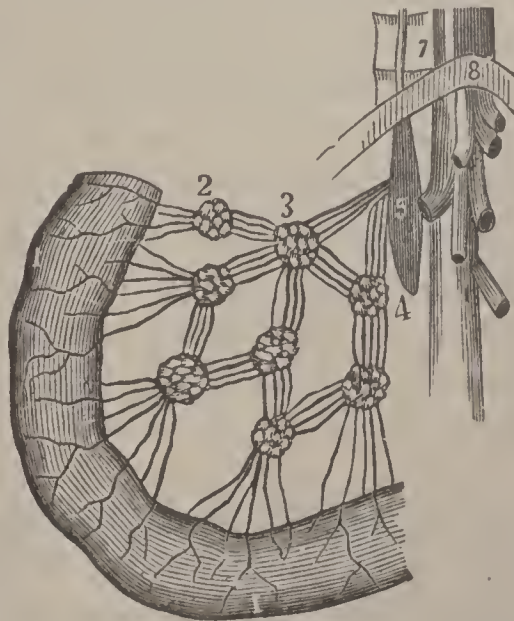


FIG. 30.

The *mesentery* is a thick sheet of membrane, formed of several folds of the peritoneum, and spread out from the vertebræ like a fan. The bowels are attached to its edge, and are held by it in their place, and at the same time have free motion. Between its layers are a great number of glands, which sometimes become diseased and swollen in childhood, and prevent the chyle from passing along to the thoracic duct. Thus affected, children are not nourished, and waste away with a disease sometimes called mesenteric consumption.

The Liver is a large gland, lying under the short ribs on the right side, below the diaphragm. It is convex on the upper surface and

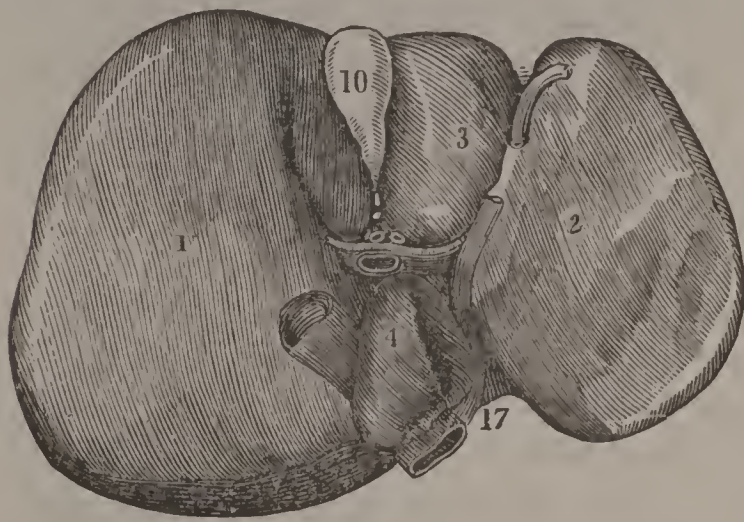


FIG. 31.

concave on the under, and is composed of several lobes. Its office is to secrete bile. It weighs about four pounds, being the largest organ in the body. Fig. 31 represents the liver: 1, being the right lobe; 2, left lobe; 3, 4, smaller lobes; 10, gall-bladder; 17, the notch into which the spinal column is fitted.

The Gall-Bladder lies on the under side of the liver, and receives, it is supposed, the surplus bile, which is reserved for special occasions. It opens into the gall-duct, which carries the bile along, and pours it into the duodenum.

The Pancreas, Fig. 32, is a long, flat gland, something like the salivary glands. It lies transversely across the back wall of the abdomen, behind the stomach. It secretes a colorless, alkaline fluid called the *pancreatic juice*, the office of which is to emulsify the different classes of food, so that the lacteals can absorb it. This fluid is carried by a duct, and poured into the duodenum just where the bile-duct enters.

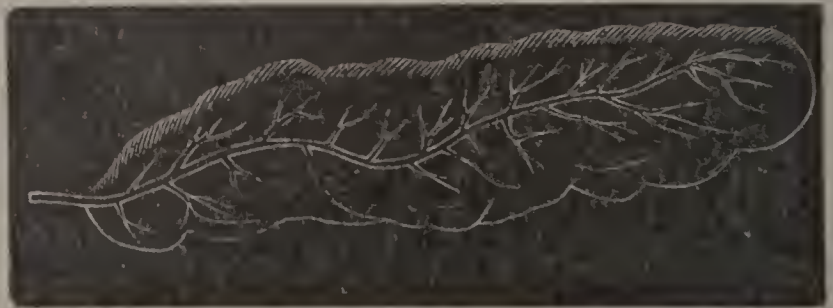


FIG. 32.

The Spleen has an oblong, flattened form. It lies on the left side, just under the diaphragm, and close to the stomach and pancreas. It is supposed to be a reservoir for holding the surplus blood of the liver. It was thought by the ancients to be the seat of melancholy. The blood in passing through it loses a portion of its red globules.

The Omentum or *caul* is a doubling and extension of the peritoneum. It is a kind of fatty body, which lies upon the surface of the

bowels and is attached to the stomach. Its use seems to be to lubricate the bowels, and especially to protect and keep them warm. Hence it is often called the *apron*.

The Urinary System.

THE organs of this system are devoted to separating the urine from the blood, and carrying it out of the body. These organs are the *kidneys*, the *ureters*, the *bladder*, and the *urethra*.

The Kidneys lie one on each side of the backbone, in the lumbar region, behind the peritoneum. They are four or five inches long, and two and a half broad. They are in shape like the kidney-bean, and weigh about half a pound each. In the centre there is a bag called the pelvis, which tapers like a funnel, and unites with the ureter which conveys the urine to the bladder. The texture of the kidney is dense, presenting in its interior two structures, an external or cortical, and an internal or medullary. The cortical portion has the blood-vessels, the medullary is composed of tubes which carry away the urine.

The Ureters are membranous tubes of the size of a goose-quill, and eighteen inches long, which run down the back wall of the abdomen, behind the peritoneum, to the bladder, into each side of which they empty their contents.

The Bladder is located in the pelvis, in front of the *rectum*. It is composed of three coats; the external is serous, the middle muscular, and the internal mucous. The external coat is strong and fibrous; the internal is drawn into wrinkles, which makes it thick and shaggy; it secretes a mucus which prevents it from being injured by the corrosiveness of the urine. The urine is retained in the bladder by means of a circular muscle, called a *sphincter*, which draws the mouth of the organ together. When the quantity of urine is so increased as to give some uneasiness or pain, this muscle, by a sort of instinct, relaxes and lets it out.

The bladder is attached to the rectum, to the hip-bones, to the peritoneum, and to the navel, by several ligaments. In the female the bladder has the womb between it and the rectum.

This organ is wisely provided as a receptacle for the urine; which, without it, would produce a great inconvenience by being constantly dribbling away.

The Urethra is a membranous canal which leads from the neck of the bladder. It is composed of two layers, a mucous and an elastic fibrous. Through this channel, which is curved in its course, the urine passes out of the body.

The Respiratory Organs.

THESE organs consist of the *windpipe* (trachea); *divisions and subdivisions of the windpipe* (bronchia); *air-cells*; and the *lungs* or *lights*.

The Windpipe (trachea) extends from the *larynx*—the seat of the voice—to the third dorsal vertebra, where it divides into two tubes, called bronchia. It runs down the front part of the throat, with the œsophagus behind and between it and the spinal column. It is composed mainly of rings of cartilage, one above another.

The Bronchial Tubes are, at the division of the windpipe, two in number, but they divide and subdivide until they become very numerous.

The Air-Cells or Vesicles are small, bladder-like expansions at the ends of the tubes. They are elastic and swell out when the air passes in.

The Lungs fill the greater part of the chest, the heart being the only other organ which occupies much space in the cavity. The size of these organs is large or small, according to the capacity of the chest. Each lung—for there are two—is a kind of cone, with its base resting upon the diaphragm, and its apex behind the collar-bone. They are concave on the bottom, to fit the diaphragm, which is convex on its upper side.

The right and left lungs are separated from each other by a partition called the *mediastinum*, formed by two portions of the pleura, a smooth serous membrane coming off from the spine and closely enveloping each lung; the heart, covered by the pericardium, lies in the centre, between them. The right lung is divided into three lobes; the left into two.

Each lobe of the lungs is divided into a great many *lobules*, which are connected by cellular tissue. These lobules are again divided into very fine air-cells. Besides these, the substance of the lungs is composed likewise of blood-vessels and lymphatics, and is well supplied with nerves.

In the foetal state, before the lungs have been filled with air, they are solid and heavy, something like other flesh, but after all their cells have been filled with air, and breathing has been established, they are exceedingly light and spongy, and float upon water.

In cases where infanticide is suspected, and where it is desirable to know whether the child was *still-born*, or born alive and killed afterwards, the specific gravity of the lungs, compared with water, will often settle the question.

The Organs of Circulation.

THE food having been digested, changed to chyle, absorbed by the lacteals, carried to the veins, poured into the right heart, sent up to the lungs, and prepared for nourishing the body, will still be useless, if not distributed to every part of the system. The organs for effecting this distribution are the *heart*, the *arteries*, the *veins*, and the *capillaries*.

The Heart is placed obliquely in the chest, with one lung on each side, and is enclosed between the two folds of the mediastinum. Its form is something like a cone. Its base is turned upward and backward in the direction of the right shoulder; the apex forward and to the left, occupying the space between the fifth and sixth ribs, about three inches from the breast-bone. It is surrounded by a membranous case or sac, called the *pericardium*.

The heart is a muscular body, and has its fibres so interwoven that it is endowed with great strength. It is a double organ, having two sides, a right and a left, which are divided from each other by a muscular partition, called a septum. The right heart sends the blood to the lungs; the left heart distributes it to the general system. Each side is divided into two compartments, an auricle and a ventricle.

The Auricles have thinner walls than the ventricles, being only reservoirs to hold the blood until the *ventricles* force it along to other parts.

The Ventricles have within them fleshy columns, called *columnæ carneæ*. The walls of the left ventricle are thicker than those of the right, being required to contract with more force. Each of the four cavities will contain from one and a half to two ounces of blood.

The Tricuspid valves are situated between the auricle and ventricle on the right side, and consist of three folds of a thin, triangular membrane. The *mitral* valves occupy the same position on the left side. Small white cords, called *chordæ tendinæ*, pass from the floating edge of these to the *columnæ carneæ*, to prevent the backward pressure of the blood from carrying the valves into the auricles.

The *pulmonary artery* is the outlet of the right ventricle; the larger artery, called *aorta*, of the left ventricle. At the opening of these arteries are membranous folds, called *semilunar valves*. Fig. 33 gives a fine view of the heart: 1, is the right auricle; 2, the left auricle; 3, the right ventricle; 4, the left ventricle; 5, 6, 7, 8, 9, 10, the vessels which bring the blood to and carry it away from the heart.

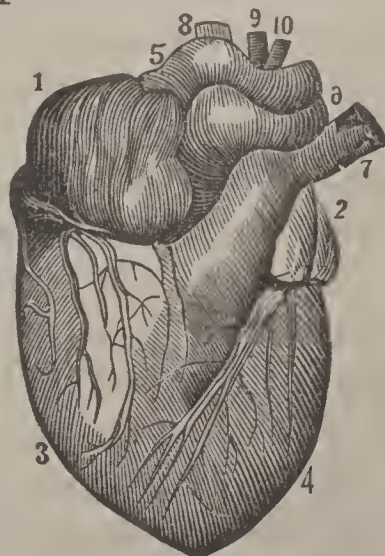


FIG. 33.

The Arteries are the round tubes which carry the red blood from the left side of the heart to every part of the body.

The sides of arteries are stiff and hard, and do not fall together when empty. They may often be seen open in a piece of boiled beef.

The arteries have three coats,—an external, which is cellular, firm and strong; a middle, which is fibrous and elastic; and an internal, which is serous and smooth, being a continuation of the lining of the heart. They are surrounded by a cell vestment called a *sheath*, which separates them from surrounding organs.

The Pulmonary Artery starts from the right ventricle in front of the opening of the aorta, and ascends to the under surface of the aortic arch, where it parts into two branches, sending one to the right, the other to the left lung. Having divided and subdivided to a great extent, they end in the capillary vessels, uniting, joining their mouths, and becoming continuous with the pulmonary veins just where they pass around the air-cells.

The Aorta is the largest artery in the body. It takes a slight turn in the chest, called the *arch of the aorta*, from which are given off the arteries which carry the blood to the head, etc.; thence it descends into the belly along the side of the backbone, and at the bottom of the abdomen it divides into two arteries, called the *iliacs* — one going to each of the lower limbs. The branches the aorta gives off a supply of red blood to every part of the body.

The Veins carry the dark or purple blood. Being made red and vital by meeting atmospheric air in the lungs, and then conveyed to every part of the body in the arteries, the blood loses its redness in the capillaries, and comes back to the heart in the veins, dark and purple, and unfit to support life. The veins are more numerous and nearer the surface than the arteries. They have, likewise, thinner walls, and when empty, they collapse or fall together. They begin in the small capillaries, and running together, they grow larger and larger, and finally form the great trunks which pour the dark blood into the right auricle. The veins are composed of three coats, similar to those of the arteries, with the exception of being thinner and more delicate. These vessels have valves all along their inner surface, to aid in circulating the blood.

The large vein which receives all the dark blood from above, and pours it into the right auricle, is called the *vena cava descendens*; the one which takes it from below, and disposes of it in the same manner, is the *vena cava ascendens*.

The pulmonary veins bring the *red* blood from the lungs to the *left* auricle, and thus are exceptional in their use, — being the only veins which carry red blood.

The Capillaries are the extremely fine network of vessels between the ends of the arteries on the one side, and of the veins on the other.

They inosculate, or join their mouths to the very small arteries at one end, and to the equally small veins at the other. They are the industrious little builders of the human frame. Receiving the blood, red, and full of life, from the terminal extremities of the arteries, they take the living particles out of it, and apply them to the renewing and vitalizing of the body, and then pass it along into the hair-like beginnings of the veins, dark and bereft of vitality, to be carried up for another freight of chyle, and to be again vitalized by being touched in the lungs by the breath of heaven.

In Fig. 34 we have a good ideal illustration of the whole circulation. From the right ventricle of the heart, 2, the dark blood is

thrown into the pulmonary artery, 3, and its branches, 4, 4, carry it to both lungs. In the capillary vessels, 6, 6, the blood comes in contact with the air, and becomes red and vitalized. Thence it is returned to the left auricle of the heart, 9, by the veins, 7, 8. Thence it passes into the left ventricle, 10. A forcible contraction of this sends it forward into the aorta, 11. Its branches, 12, 13, 13, distribute it to all parts of the body. The arteries terminate in the capillaries, 14, 14. Here the blood loses its redness, and goes back to the right auricle, 1, by the vena cava descendens, 15, and the vena cava ascendens, 16. The tricuspid valves, 17, prevent the reflow of the blood from the right ventricle to the right auricle. The semilunar valves, 18, prevent the blood from passing back from the pulmonary artery to the right ventricle. The mitral valves, 19, prevent its being forced back from the left ventricle to the left auricle. The semilunar valves, 20, prevent the backward flow from the aorta to the left ventricle.

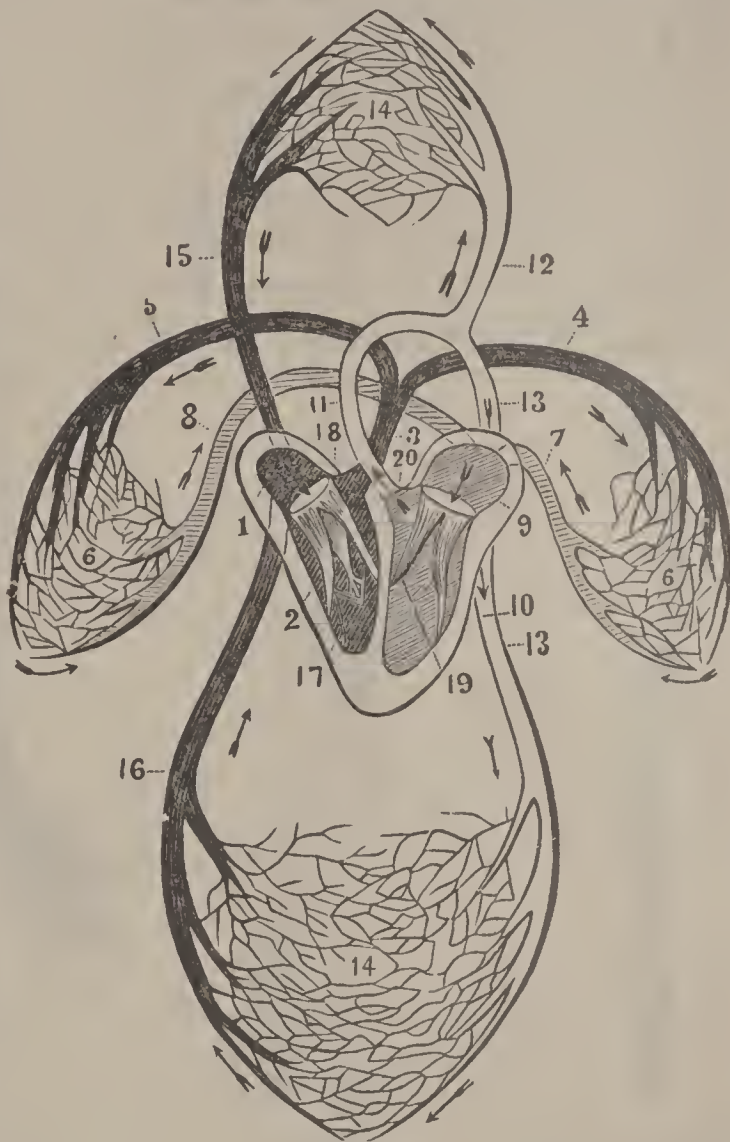


FIG. 34.

By a careful examination of this diagram, with these explanations, the reader may understand the circulation very well.

The passage of the blood from the right heart, through the lungs, and back to the left heart, is called the *lesser*, or *pulmonic circulation*; its passage from the left heart through all parts of the body, and back to the right heart, is the *greater* or *systematic circulation*.

The Absorbent Vessels.

THE vessels which absorb the chyle from the small intestines, and convey it onward towards the blood, are the *lacteals*. They have been described. The veins are also supposed to have the power of absorption, particularly the small commencements of the veins. These have likewise been described.



FIG. 35.

The Lymphatic vessels resemble the lacteals. They abound in the skin, the mucous membranes, and the lungs. They are very small at their origin, and, like the veins, they increase in size, as they diminish in numbers. Like the veins, too, they travel towards the heart, and their



FIG. 36.

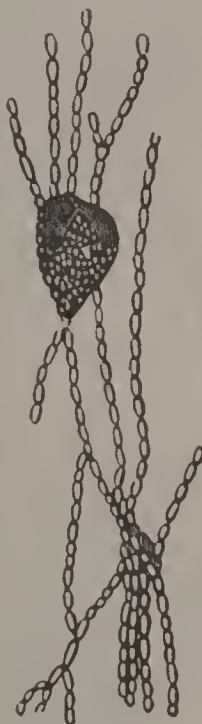


FIG. 37.

contents are poured into it. Their walls are composed of two coats; the external is cellular, and distensible; the internal is folded into valves, like that of the veins.

These vessels, on their way to the heart, pass through soft bodies, called *lymphatic glands*, which bear to them the relation that the mesenteric glands do to the

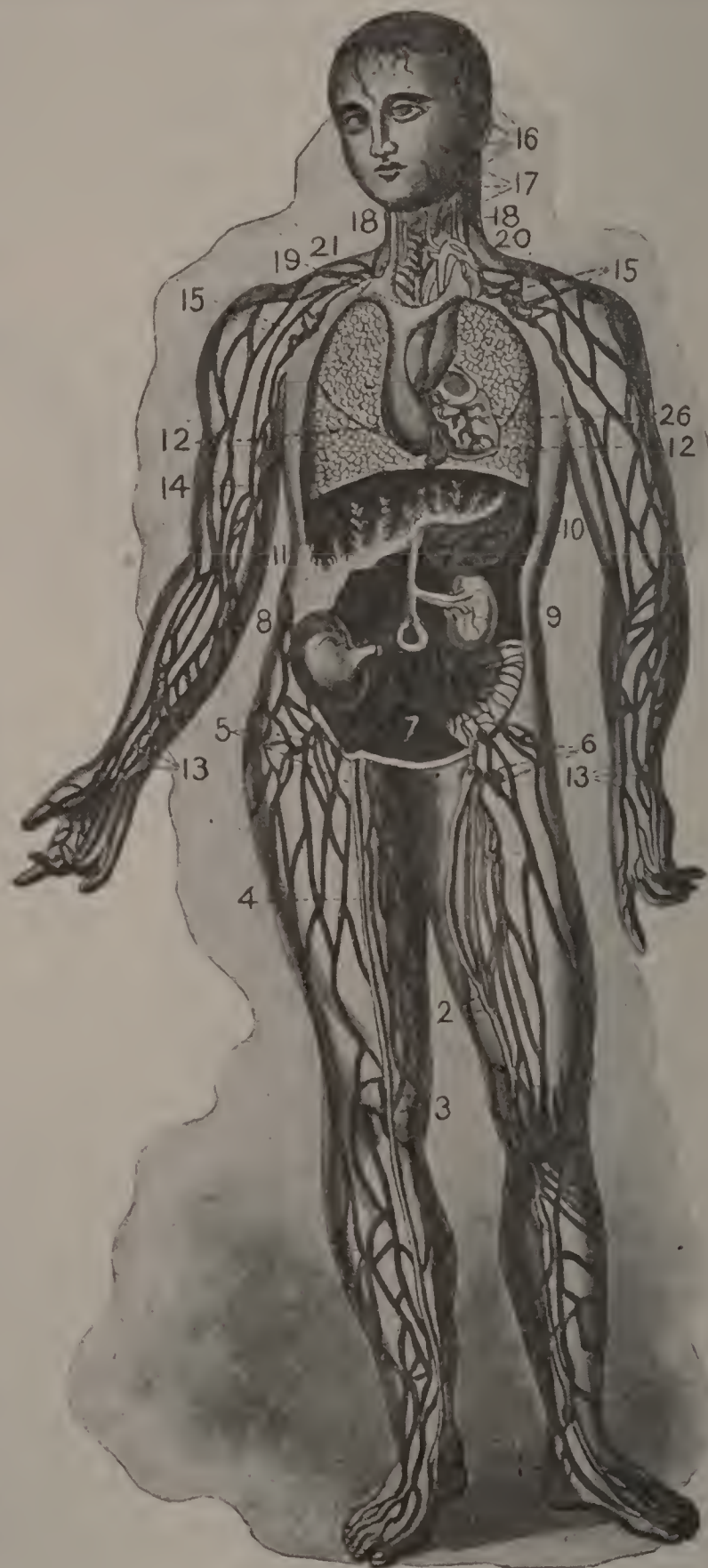


FIG. 38.

lacteals. These glands are a collection of small vessels. The lymphatic glands are most numerous in the neck, chest, abdomen, arm-pits, and groins. They are also found, to some extent, in other parts of the body. Fig. 35 shows a single lymphatic vessel, much magnified; Fig. 36 exhibits the valves along one of the lymphatic trunks; Fig. 37 shows a lymphatic gland with the vessels passing through it.

Fig. 38 represents the lymphatic vessels and glands. 1, 2, 3, 4, 5, 6, show these vessels of the lower limbs; 7, the inguinal glands; 8, the commencement of the thoracic duct, into which the contents of lymphatic are poured; 9, the lymphatics of the kidneys; 10, those of the stomach; 11, those of the liver; 12, 12, those of the lungs; 13, 14, 15, those of the arm; 16, 17, 18, those of the face and neck; 19, 20, the large veins; 21, the thoracic duct; 26, the lymphatics of the heart.

A cold will often cause lymphatic glands to swell. These swellings are called *kernel*s. They often swell, also, without the irritation from cold, and become very much and permanently enlarged, particularly in scrofula. In scrofulous subjects they sometimes suppurate and break, forming bad sores upon the neck.

The Organs of Secretion.

THE *exhalants*, the *follicles*, and the *glands* are the *organs of secretion*.

The Exhalants are the sweat-glands. These have external terminations upon the skin, thus communicating with the air, and internal terminations upon the surfaces of organs not having an outward exposure.

The Follicles are small sacs, located in the true skin and mucous membranes. The pores of the skin are the mouths or outlets of these little bags. Veins and organic nerves are sent to these vessels.

Glands are soft organs, having a variety of structure, and performing many kinds of secretion. A gland is made up of several lobules, united in one mass, and each of these lobules has a small duct, communicating with a main duct which forms the outlet. Fig. 39 shows a gland; 2, the small ducts spread through its body, and running together; 1, the large duct, through which the secreted substance is carried away.

The mesenteric and lymphatic glands merely modify the fluids which pass through them; others secrete from the blood either fluids to be used in the body, or such as are to be cast away.



FIG. 39.

The Vocal Organs.

No sounds touch the heart like those of the human voice, for no mechanic, however scientific and skilful, has ever been able to make an instrument which could produce sounds as beautiful, tones as varied, a timbre as melodious, and inflexions as manifold and agreeable. It has been compared to wind, reed and stringed instruments. In touching expression, it is most resembled by the concert-horn, the bassoon, and the hautboy.

Vocal sounds, past all question, are produced in the *larynx*, but these sounds are *grouped*, or formed into articulate speech, by the pharynx, the nasal cavities, the tongue, the teeth, etc.

The Larynx is a kind of cavity or tube at the top of the windpipe, formed by the union of five cartilages, namely, the *thyroid*, the *cricoid*, the two *arytenoid*, and the *epiglottis*. Ligaments bind these together, and muscles move them.

The Thyroid Cartilage is composed of two parts, and has a connection with the bone of the tongue above, and with the cricoid cartilage below.

The Cricoid Cartilage is shaped like a ring, and hence its Greek name. It is narrowest in front, and broadest behind. It connects

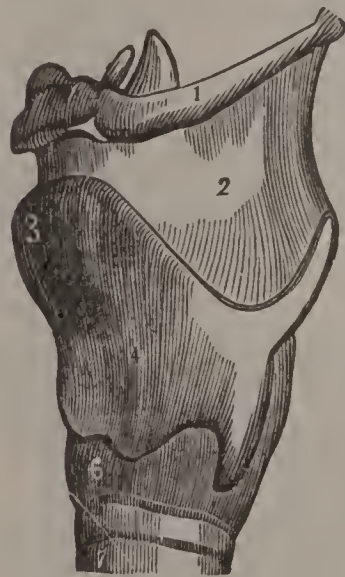


FIG. 40.

with the thyroid cartilage above, and with the first ring of the trachea below. Fig. 40 gives a side view of the cartilages of the larynx: 1, bone at the base of the tongue (os hyoides); 2, the ligament connecting hyoid bone and the thyroid cartilage; 3, the front of the thyroid cartilage; 4, the thyroid cartilage; 6, the cricoid cartilage; 7, the windpipe.

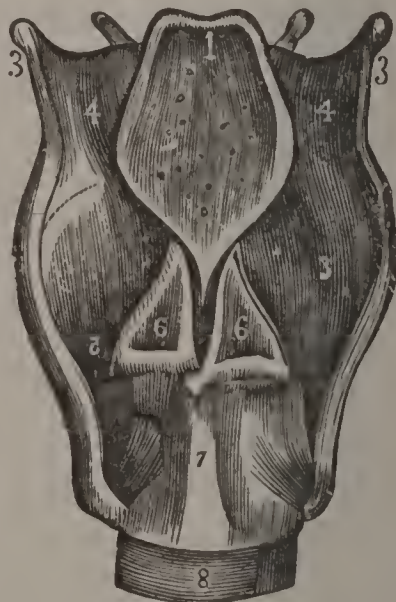


FIG. 41.

Fig. 41 is a back view of the cartilages and ligaments of the larynx: 1, is the back surface of the epiglottis; 3, 3, the os hyoides; 4, 4, the lateral ligaments connecting the os hyoides and the thyroid cartilage; 5, 5, the back face of the thyroid cartilage; 6, 6, the arytenoid cartilages; 7, the cricoid cartilage; 8, the first ring of the windpipe.

The Arytenoid Cartilages are upon the back part of the cricoid, and are connected with the thyroid cartilage by the vocal cords.

The Epiglottis is a fibro-cartilaginous lid, shaped like a leaf, which covers the upper opening of the larynx. It is connected by a carti-

lage to the bone of the tongue (os hyoides) and to the thyroid cartilage. Breathing opens and shuts it; and in swallowing, it closes down upon the top of the larynx, to prevent food and drink from passing down the windpipe.

The Vocal Cords are two ligaments, formed of elastic and parallel fibres, enclosed in a fold of mucous membrane. They are about two lines in width, and inserted behind into the anterior projection of the arytenoid cartilages, and passing forward, are fixed to the anterior angle of the thyroid. There are four ligaments crossing the larynx, two superior and two inferior, — the latter being called vocal cords. The interval between them is the glottis. The ligaments themselves are sometimes called the *lips of the glottis*. The depression between the superior and inferior ligaments is the *ventricle* of the larynx.

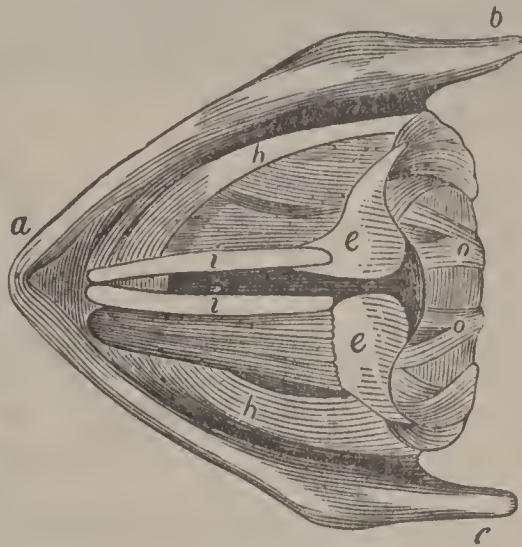


FIG. 42.

Fig. 42 represents a view of the larynx from above: *a, b, c*, the thyroid cartilage, enclosing the ring of the cricoid; *h, h, e, e*, the arytenoid cartilages connected by the transverse arytenoid muscle; *i, i*, the vocal cords; *o, o*, the crico-arytenoid ligaments.

The muscles which are attached to the cartilages have the power of pulling them about so as to change in various ways the shape of the laryngeal cavity; to enlarge or diminish the size of the glottis; and to relax or tighten the vocal cords. By these means, and some others, the sounds of the voice receive their various modifications. Tightening the cords, for example, raises the pitch.

The Skin.

THE skin is a membrane composed of two layers, covering the entire person. The outer layer is the *scarf-skin* or *cuticle*; the inner is the *true skin* or *cutis* or *corium*. These layers differ in their structure and uses.

The Scarf-Skin, called also *cuticle* and *epidermis*, is a thin membrane, partially transparent, like a thin shaving of horn. Having no blood-vessels or nerves, and consequently no feeling, it appears to be a simple covering to protect the true skin from injury by external agents. It is thickest on those parts most exposed to friction.

The scarf-skin is the production of the true skin, — an exudation from it in the shape of a fluid which is spread out as a thin layer, and *dries* up into flattened scales. The cuticle is composed chiefly of these scales, and is constantly being rubbed off as scurf, while new layers are forming underneath.

The lower, softer layer of the scarf-skin, called the *malpighian* layer, or *rete mucosum*, is the seat of *color*. In this part the cells contain a pigment incorporated with the elementary granules, which gives to the various races their several shades of color. The depth of hue is dependent entirely on the amount of this coloring matter.

The True Skin, which is called *cutis*, *derma* or *corium*, is a kind of web, woven of small fibres collected into strands. In the upper portion, the web is fine and firm, but grows coarser below. Connected

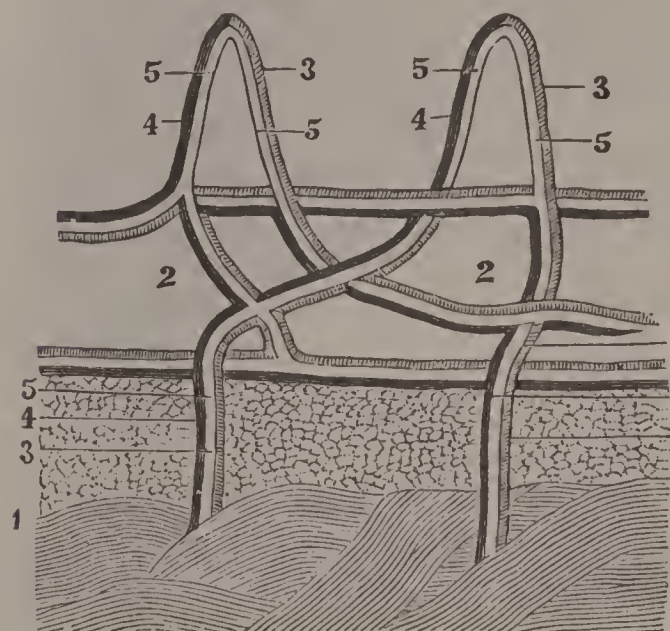


FIG. 43.

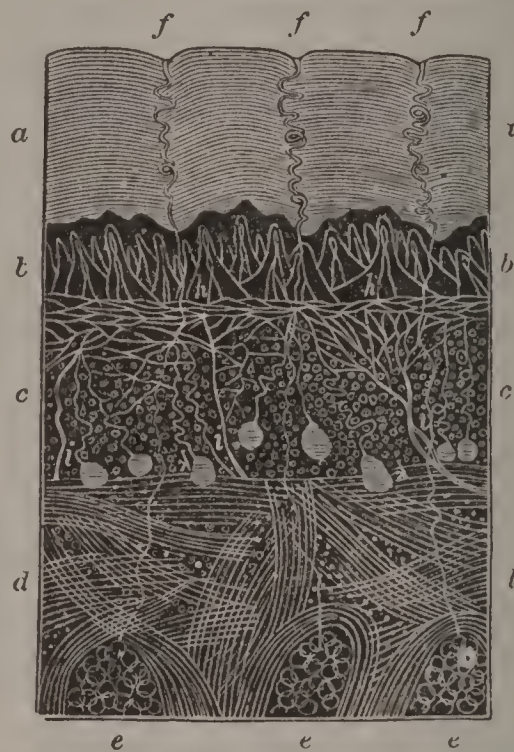


FIG. 44.

with its under surface is a fibrous web in which the fat is deposited. Upon its upper surface is the sensitive or papillary layer, composed of blood-vessels and nerves, doubled into loops, which give little prominences called papillæ. Fig. 43 gives an ideal view of these elevations, composed as they are, of a nerve, an artery, and a vein, lying side by side; 1, 1, represent the true skin; 2, 2, the papillary layer; 3, 3, the arteries; 4, 4, the veins; and 5, 5, the nerves of the papillæ.

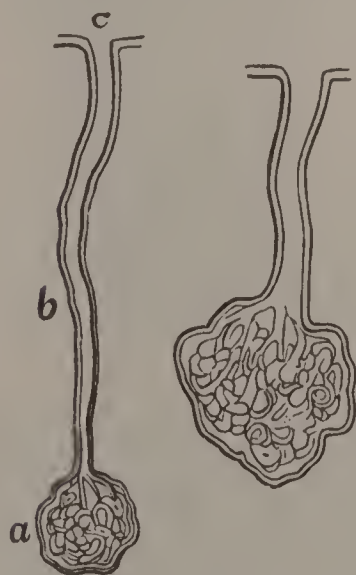


FIG. 45.

The arteries, veins, and nerves are spread over the true skin in great numbers,—so profusely, that it is impossible to push the point of the finest needle into it, without piercing a blood-vessel and a nerve.

Fig. 44 gives a view of the skin: *a, a*, the cuticle; *b, b*, the colored layer of the cuticle; *c, c, d, d*, the true skin; *e, e, e*, fat-cells; *f, f, f*, sweat-tubes.

The *lymphatics* are very numerous in the skin, besides which there are *oil-glands* and *tubes*, and *sweat-glands* and *tubes*.

The Oil-Glands are imbedded in the skin, and communicate with the surface by small tubes. They are most abundant on the face,

nose and ears. Fig. 45 shows an oil-gland, — *a*, being the gland, *b*, the tube, and *c*, its mouth.

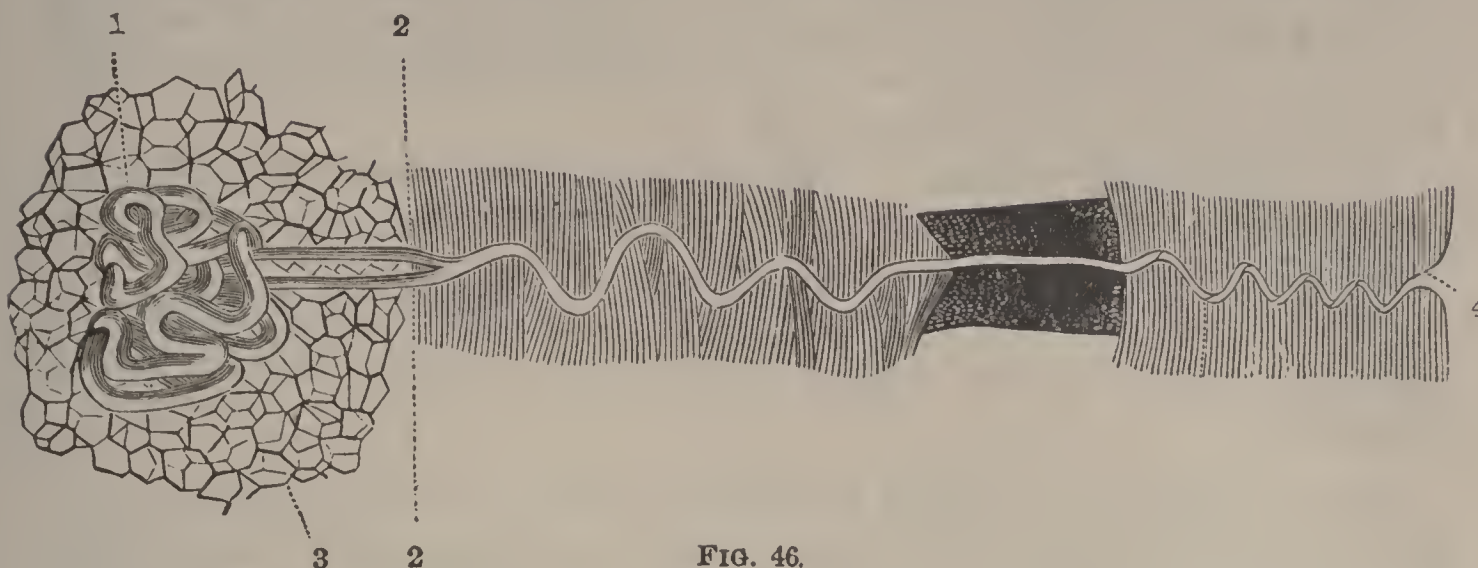


FIG. 46.

The Sweat-Apparatus consists of small tubes which pass down through the true skin, and terminate in the meshes at the bottom, where it coils upon itself into a kind of bundle, called the *perspiratory gland*. Fig. 46 gives one of these tubes, with the gland, magnified forty diameters: 1, being the coiled tube or gland; 2, 2, the two excretory ducts from the gland. These uniting form one spiral tube, which opens at 4, which is the surface of the cuticle; 3, are the fat-cells.

The hair and the nails are appendages of the skin.

The Nervous System.

The Nervous System consists of the *brain* and *spinal cord*, connected with each other, and called the *cerebro-spinal axis*; the *cranial nerves*; the *spinal nerves* and the *sympathetic nerve*.

The Brain is that mass of nervous matter lodged within the skull-bones. It is made up of three principal parts, — the *cerebrum*, the *cerebellum*, and the *medulla oblongata*. These are nicely covered and protected by three membranes, the *dura mater*, the *arachnoid*, and the *pia mater*.

Fig. 47 shows a considerable portion of the brain, — the skull-bones and membranes being removed. The scalp turned down is represented by A, A; E, E, E, show the cut edge of the bones; C, is the *dura mater*, drawn up with a hook; F, the convolutions of the brain.



FIG. 47.

The Cerebrum is the upper and larger portion of the brain, and is

divided into two hemispheres by a fissure. A portion of the *dura mater* dips into this cleft, and from its resemblance to a sickle, is called the *falx cerebri*. The design of this seems to be to support each half of the brain, and to prevent it from pressing upon the other half when the head reclines to one side.

The undulating surface of the cerebrum is produced by what are called *convolutions*. The lower surface of this organ is divided into three lobes, — the anterior, the middle, and the posterior.

The surface of the cerebrum is of a gray color, called *cortical*, or *cineritious*; the central portion is white and fibrous, and is called *medullary*.

The Cerebellum is about one-sixth the size of the cerebrum. It lies just under the posterior lobe of the cerebrum, and is separated from it by an extension of the *dura mater*, called the *tentorium*. It is composed of white and gray matter; when the former is cut into, there is presented the appearance of the trunk and branches of a *tree*, called *arbor vitæ*.

The Medulla Oblongata is the top of the spinal cord; but being within the enclosure of the skull, it passes for a portion of the brain. It consists of three pairs of bodies, united so as to form a bulb.

The Dura Mater is a strong, fibrous membrane which lines the skull and spinal column, and sends processes inward to support the brain, and forward, as sheaths for the nerves which go out from the brain and spinal cord.

The Arachnoid is a serous membrane, and like all other serous membranes, is a closed sac. It is reflected upon the inner surface of the *dura mater*.

The Pia Mater is a vascular membrane, and lies next to and invests the whole surface of the brain, — dipping into its convolutions. It furnishes nutriment to the brain.

The Cranial Nerves which go out from the brain are in twelve pairs. In reading a description of them, let the reader keep his eye on Fig. 48.

The First Pair, olfactory (6), passes through several small openings in the ethmoid bone, and is distributed to the mucous membrane which lines the nose. Destroy this, and the sense of smell is gone.

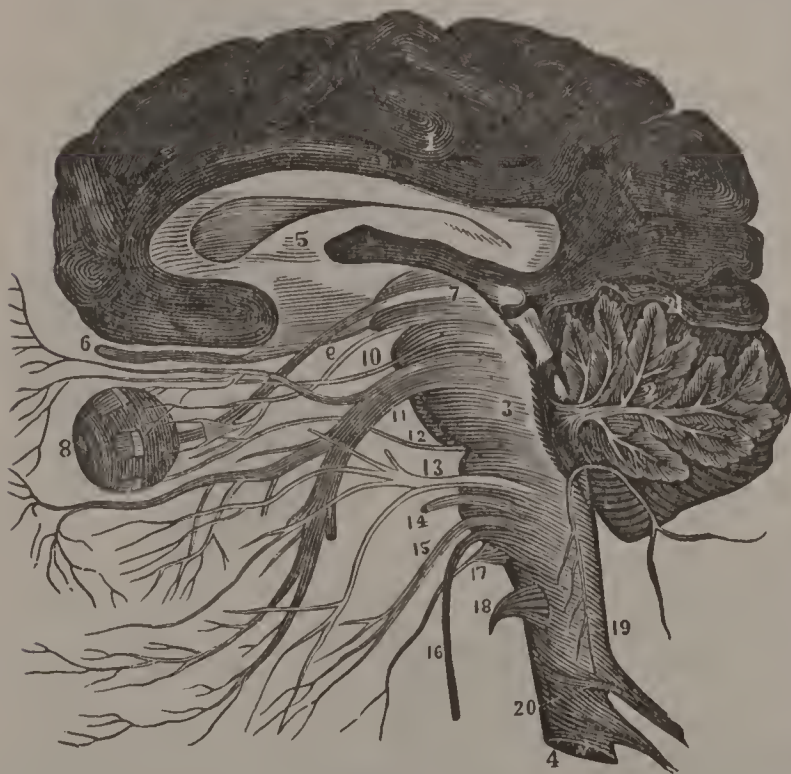


FIG 48.

The Second Pair, optic nerve (7), passes through the base of the skull, and enters the cavity of the eye where it is expanded upon the retina. It is a disease of this nerve which occasions a gradual loss of sight, called *amaurosis*.

The Third Pair, *motores oculorum* (9), passes through the sphenoid bone to the muscles of the eye.

The Fourth Pair, *patheticus* (10), passes to the superior oblique muscle of the eye.

The Fifth Pair, trifacial nerve (11), like the spinal nerves, has two roots, and divides into three branches, one going to the eye, forehead, and nose, called the *ophthalmic* branch; another going to the eye, the teeth of the upper jaw, etc., called the *superior maxillary*; and the third going to the ear, the tongue, and the teeth of the lower jaw, and called the *inferior maxillary*. It is a painful condition of the branches of the fifth pair which constitutes the terrible neuralgic affection called *tic-douloureux*.

The Sixth Pair, *abducentes* (12), passes the opening by which the carotid artery enters the cavity of the skull, and goes to the external straight muscle of the eye.

The Seventh Pair, *portio mollis* (13), is distributed upon the internal ear.

The Eighth Pair, facial nerve (14), is distributed over the face. It sends nervous filaments to the muscles.

The Ninth Pair, glosso-pharyngeal nerve (14), passes through the same opening with the jugular vein, and is distributed upon the mucous membrane of the tongue and throat.

The Tenth Pair, pneumogastric nerve (15), sends its branches to the pharynx, larynx, gullet, lungs, spleen, pancreas, liver, stomach, and bowels.

The Eleventh Pair, spinal accessory nerve (16), connects with the ninth and tenth pairs, and is distributed to the muscles of the neck.

The Twelfth Pair, hypo-glossal nerve (17), goes to the tongue, and is its motion-producing nerve. It is a nerve of great energy in those who talk much.

The Spinal Cord extends from the medulla oblongata, where it is in connection with the brain, down to the second lumbar vertebra. The upper end of the cord presents a bulbous swelling, or enlargement. Another swelling is found where the nerves are given off which go to the upper extremities; and a third near the end of the cord, where the nerves begin which go to the lower extremities.

Fissures dip into the cord before and behind, and divide it into two lateral parts, which are united by a thin layer of white substance.

These lateral columns are divided by furrows into *anterior*, *lateral*,

and *posterior* columns;— the anterior being supposed to be the *motor* column, the posterior that of *sensation*, and the lateral divided in function between motion and sensation.

The Spinal Nerves, connecting with the cord, are in pairs, of which there are thirty-one. Each pair has two roots,—a *motor* root,

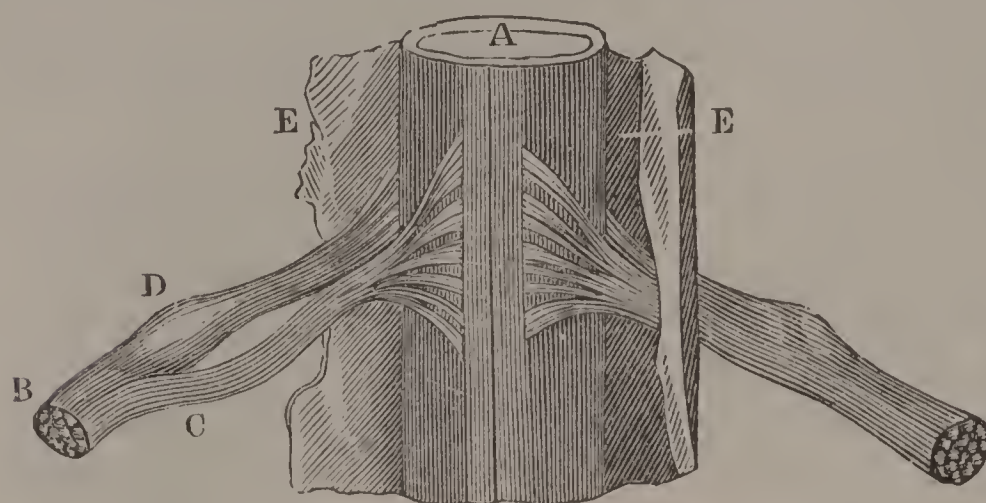


FIG. 49.

C, Fig. 49, arising from the anterior columns of the cord, and a *sensitive* root, D, springing from the posterior columns. A, is a section of the cord, surrounded by its sheath. B, is the spinal nerve, formed by the

union of the motor and sensitive roots. After the union, the nerve, with its motor and its sensitive filaments, divides and subdivides as it passes on, and is distributed to the tissues of the several organs.

The thirty-one pairs of spinal nerves are divided into eight pairs of *cervical*, twelve pairs of *dorsal*, five pairs of *lumbar*, and six pairs of *sacral* nerves.

Fig. 50 gives a view of the brain and spinal cord, with the nerves given off by the latter: 1, 1, being the two hemispheres of the brain; 3, 3, the cerebellum; 4, the olfactory nerve; 5, the optic; 7, the third pair; 8, the pons varolii, so called; 9, the fourth pair; 10, the lower portion of the medulla oblongata; 11, 11, the spinal cord; 12, 12, the spinal nerves; 13, 13, the brachial plexus; 14, 14, the lumbar and sacral plexus.

The Brachial Plexus is formed by the interlacing of the four lower cervical and upper dorsal pairs of nerves. It gives off six nerves, which are distributed to the muscles and skin of the upper extremities.

The Lumbar and Sacral Plexus is formed by the last dorsal and five lumbar nerves, from which nerves go to the muscles and skin of the lower extremities, and the last lumbar and four sacral, from which nerves are sent to the muscles and skin of the hips and lower extremities.

The Sympathetic Nerve consists of a series of *knots* (ganglia), lying along on each side of the spinal column, and forming a knotted chain. There is a knot for each intervertebral space, the neck excepted. These knots are composed of both cineritious and medullary matter.

Each knot is a distinct centre, and gives off branches upward, downward, externally, and internally. All the internal organs are

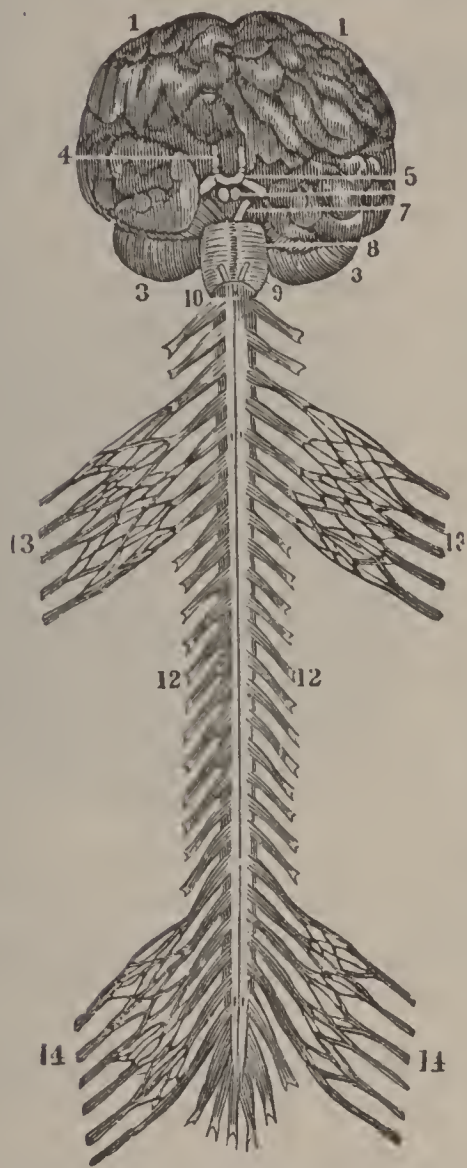


FIG. 50.

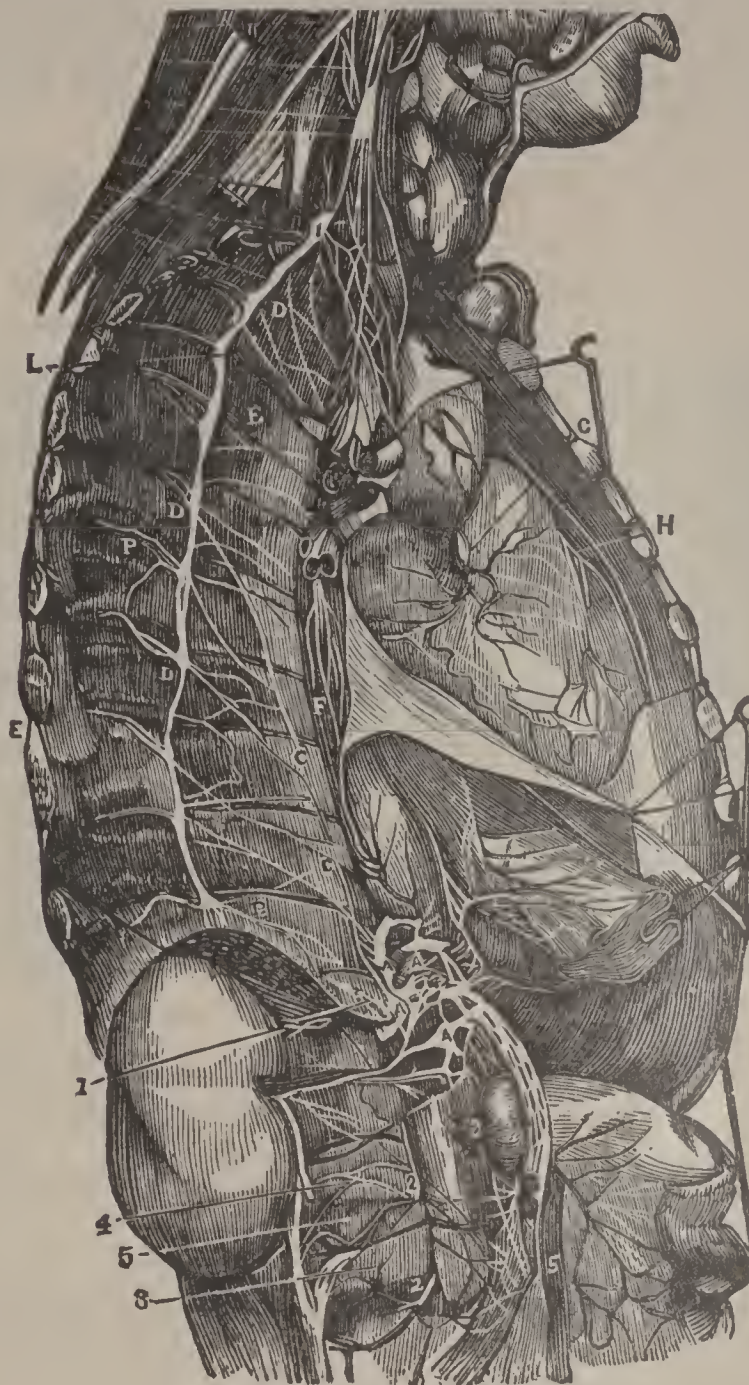


FIG. 51.

supplied with branches from the sympathetic nerve. It is called the nerve of organic life, and is supposed to preside over nutrition, secretion, etc., as the nerves of the brain and cord preside over motion and sensation.

Fig. 51 is a fine representation of the great sympathetic, with its knots, and connections with other nerves. A, A, A, is the semilunar ganglion and solar plexus, lying just under the diaphragm and behind the stomach. Its presence in this region is the reason why a blow upon the pit of the stomach sometimes destroys life. D, D, D, are the thoracic ganglia; E, E, the external and internal branches of the same; G, F, the right and left coronary plexus upon the heart; I, N, Q, the inferior, middle, and superior cervical ganglia; 1, the renal plexus around the

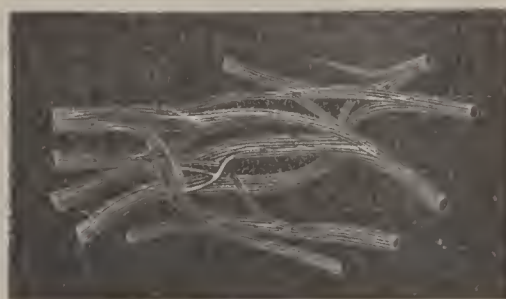


FIG. 52.

kidneys; 2, the lumbar ganglion; 3, the internal branches; 4, the external branches; 5, the aortic plexus.

Fig. 52 represents a plexus, showing how the filaments of one nerve pass to be enclosed in the sheath of another. In this way they change at once the direction of their journey, and their companions upon the way.

The Organs of Sight.

THE organs of vision are the *optic nerve*, the *globe of the eye*, the *muscles of the eye*, and the *organs of protection*.

The Optic Nerve begins by two roots at the base of the brain, the fibres from which meet, as they come forward, and some of them cross each other. The two nerves then separate, and enter the back part of the globe of the eyes, and then spread out into a kind of membrane. In Fig. 53: 1, 1, show the globe of the eye; 2, the crossing of the optic nerve; 8, the origin of two pairs of cranial nerves.

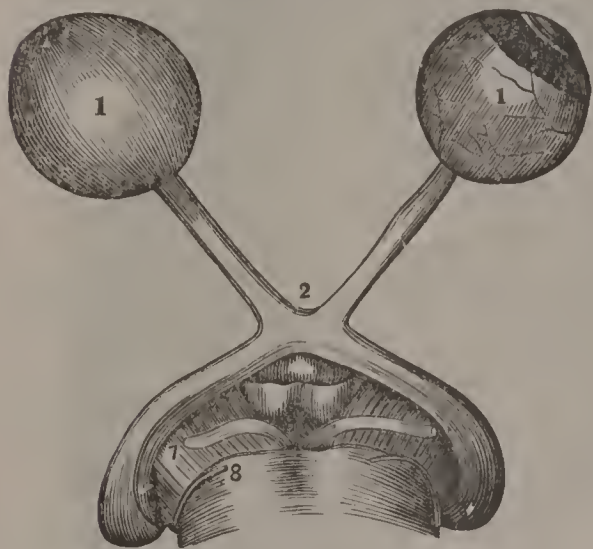


FIG. 53.

The Globe of the Eye is a better constructed optical instrument than man ever made. Its interior is filled with what are called refracting *humors* or *mediums*, which are surrounded and

held in their place by membranes, called *coats*.

The Coats are the *sclerotic* and *cornea*; the *choroid*, *iris*, and *ciliary processes*; and the *retina*.

The Sclerotic Coat is a fibrous membrane, covering the largest portion of the globe. To this the muscles are attached. It is the part which is called the *white of the eye*. It has a beveled edge in front, into which the cornea is fitted.

The Cornea is a transparent layer which projects in front, and forms about one-fifth of the globe. It is shaped like a watch-glass. Its blood-vessels are too small to receive the red particles of blood.

The Choroid Coat is a vascular membrane. Its color is brown externally, and black within. It is connected with the sclerotic coat externally, and internally with the retina. It is composed of three layers.

The Iris is named from its having a variety of colors in different persons. It is the partition between the anterior and posterior chambers of the eye, and has a circular opening in the centre called the *pupil*. Of its two layers, the fibres of the anterior one are radiating, and dilate the pupil, while those of the other are circular, and cause its contraction.

The Ciliary Processes are a number of folds formed from the internal layer of the choroid coat.

The Retina has three layers. The external is extremely thin; the middle is nervous, being an expansion of the optic nerve; the internal is vascular, and consists of a ramification of minute blood vessels.

The divided edge of their coats may be seen in Fig. 54, namely, the sclerotic, the choroid, and the retina: 2, is the pupil; 3, the iris; 4, the ciliary process; 5, the scalloped border of the retina.

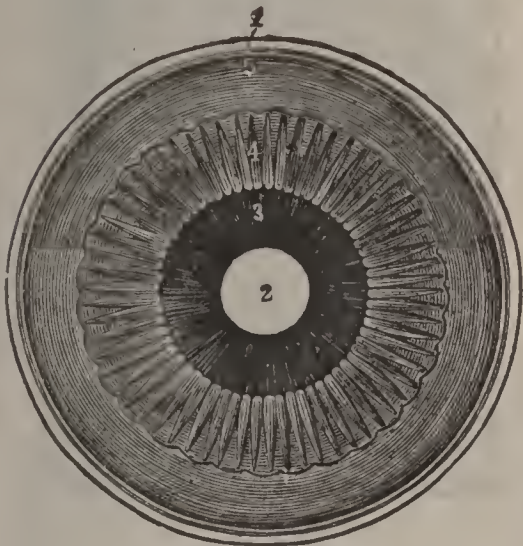


FIG. 54.

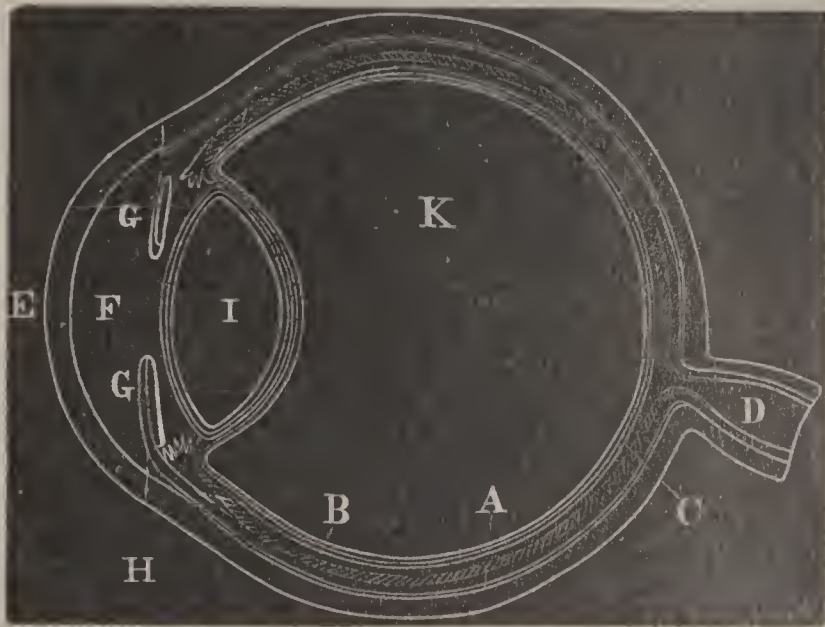


FIG. 55.

The Humors of the Eye are the *aqueous*, the *crystalline*, and the *vitreous*.

The Aqueous or watery humor is situated in the chambers of the eye. It is an albuminous fluid, with an alkaline reaction, and a specific gravity a little greater than distilled water.

The Crystalline Humor is immediately behind the pupil. It is a *lens*, and is convex both on the posterior and the anterior surface.

The Vitreous Humor is also an albuminous fluid something like the aqueous humor, but more dense.

In Fig. 55 we have in E a good view of the cornea fitted into the sclerotic coat; A, is the choroid; B, the pigmentum nigrum, C, the retina; K, the vitreous humor; D, the optic nerve; I, the lens; C, the Iris, painted on the back side with pigment; F, the aqueous humor.

The muscles of the eye, six in number, are attached to the bones of the orbit behind, and to the cornea in front, by their tendons. These tendons give the eye its pearly appearance. In Fig. 56, five of the muscles are indicated by *a, b, c, d, e*; *f*, is the optic nerve.

If the internal muscle be too short, the eye is drawn in towards the nose, and the squinting called "cross-eye" is produced.

The Orbits are bony sockets which enclose the eye. The optic nerve passes through a large hole at the bottom.

The Eyebrows are the projecting arches above, covered with short hair. They prevent the sweat from running down into the eyes, and also shade them from strong light.

The Eyelids are the curtains which rise and fall in front. The smooth membrane which lines them is called the *conjunctiva*. It secretes a fluid which makes the eyelids open and shut easily.

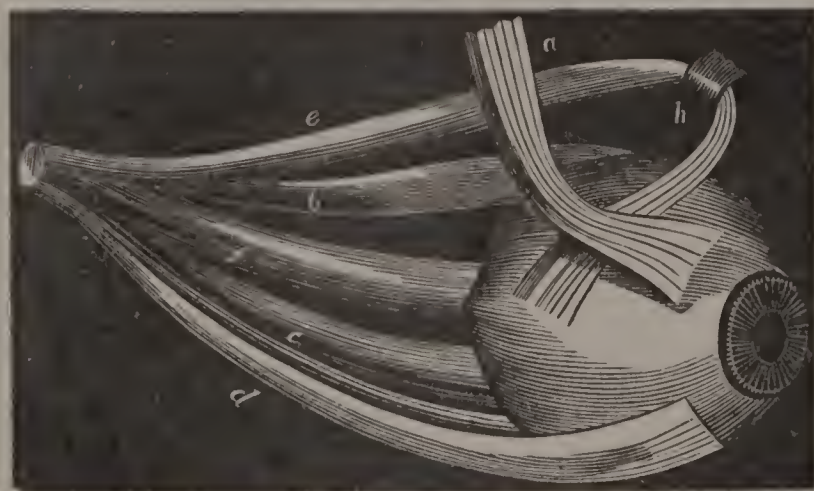


FIG. 56.



FIG. 57.

The Lachrymal Gland is at the upper and outer angle of the orbit. Several small ducts open from it upon the upper eyelid, through which the tears run down upon the conjunctiva.

The Lachrymal Canals begin near the internal angle of the eye, by two small-tear points, which communicate with the sac at the upper part of the nasal duct.

The Nasal Duct is a canal about three-quarters of an inch long, which runs down to the inferior channel of the nose.

Fig. 57 shows these organs: 1, being the lachrymal gland; 2, the ducts leading to the upper eyelid; 3, 3, the tear-points (*puncta lachrymalis*); 4, the nasal sac; 5, the termination of the nasal duct.

The Organs of Hearing.

The External Ear is composed of the pavilion of the ear (the pinna), and the auditory canal (the *meatus auditorius externus*).

The Pinna surrounds the entrance to the auditory canal. It stands out from the head, and is in common language called the ear.

The Meatus Auditorius is a canal about an inch long, partly bony and partly cartilaginous, which goes from the pavilion of the ear to the *drum of the ear*.

The Drum of the Ear (*membrana tympani*) is an oval-shaped thin membrane, inserted into a groove around the auditory canal.

The **tympanum** is a cavity within the temporal bone.

The **Eustachian Tube** is a channel of communication between the tympanum and the upper part of the pharynx. The object of this is to convey air to the drum of the ear, as without air no sound can be produced.

The **Labyrinth** is a series of chambers through the petrous bone — embracing the *vestibule*, a three-cornered cavity within the tympanum; the *semi-circular canals*, communicating with the vestibule, and the *cochlea*, which makes two and a half turns around an axis, called the



FIG. 58.

modiolus.

In Fig. 58, *a*, is the pavilion of the ear; *c*, the auditory canal; *g*, the membrana tympani; *k*, the tympanum; *e*, the bones of the ear; *b*, the semicircular canals; *f*, the cochlea; *h*, the vestibule; *i*, the eustachian tube; *d*, the auditory nerve.

In Fig. 59, we have a view of the labyrinth laid open, and highly magnified: 1, 1, being the cochlea; 2, 3, the channels that wind around the central point (5); 7, 7, the vestibule; 8, the foramen rotundum; 9,

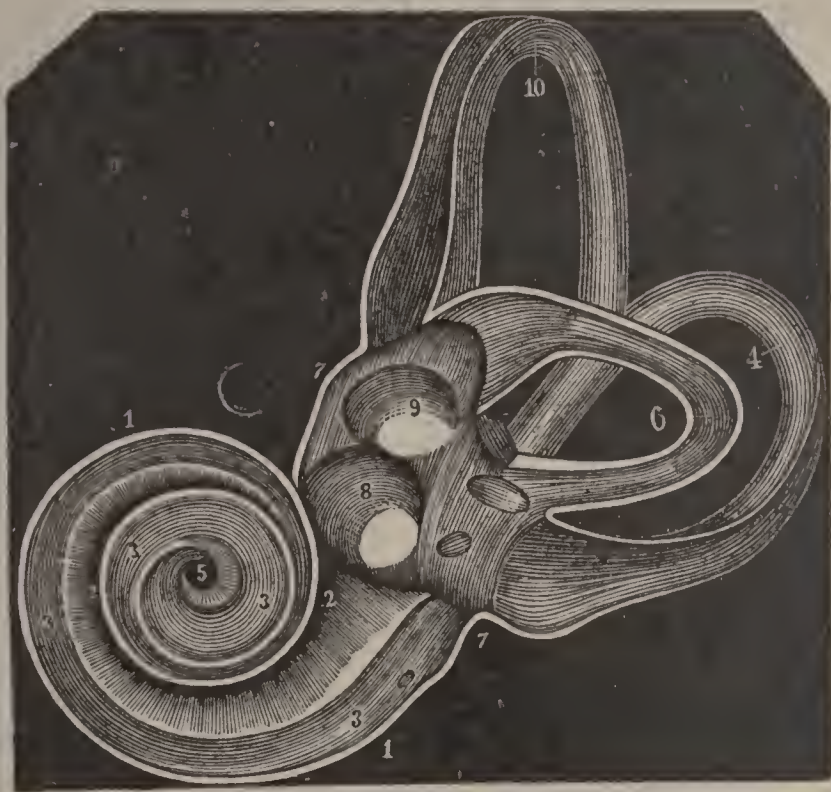


FIG. 59.

the fenestra ovalis; 4, 6, 10, the semicircular canals.

HYGIENE

Physiological Laws of Life and Health

It is absolutely necessary that every person should be conversant
with Hygiene, to understand the laws of health.

PHYSIOLOGICAL LAWS OF LIFE AND HEALTH.—HYGIENE.

Life, the Infancy of Being.

It may be stated as a general truth that man has but just learned to live when he is ready to die. We expend a large portion of our lives in searching out our mistakes, and in striving to undo the mischiefs they have occasioned. This is true in reference both to our moral and our physical life ; and I draw from it the conclusion that the present must be only the infancy of our being, and that our blunders and consequent sufferings here will cause us, in the great hereafter, to place a higher value upon knowledge, and to struggle with new fortitude to rid ourselves of every bondage.

A life which has just begun to take shape and symmetry, cannot be permitted, I think, under the rule of a benevolent Creator, to become extinct. We shall certainly be permitted to take up the broken thread of life, and, in the clearer light of the future, with the warning experience of the past, and surrounded by better guards, to try again. In the meantime, while here, the sooner we become acquainted with the laws of life, and the better we obey them, the more we shall enjoy.

The Nervous System.

MAN is brought into connection with the outward world through the senses of feeling, seeing, hearing, etc. These communicate with the brain and mind through the nerves of sensation.

The nervous system is divided into two great central portions, the brain and the spinal cord ; and these together are called, by the learned, the *cerebro-spinal centre*. There are numerous pulpy white cords, called nerves, which at one end are connected with this great axis or centre, and from thence run to all parts of the system. A portion of these nerves start from the base of the brain and run to the eye, the ear, the tongue, etc. (Fig. 48) ; while another, and a larger part spring from the cord which runs through the backbone, and are distributed over the body and the lower extremities (Figs. 50 and 60). One portion of these cords produce feeling ; another part, motion. The former we call sensitive ; the latter, motor. Both kinds are widely distributed over the body. Those which spring from the spinal cord have two roots, one uniting with the *back*, the

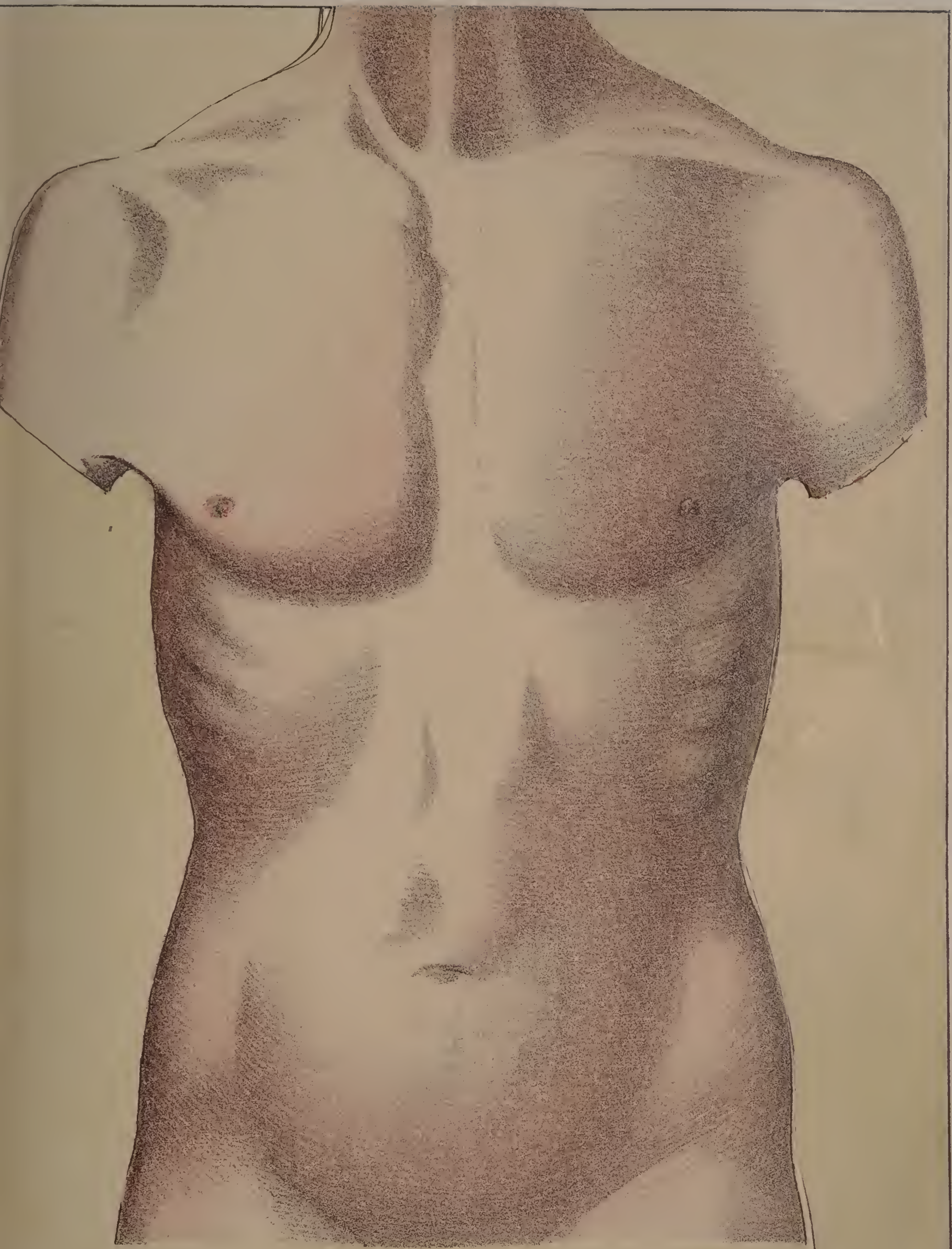
other with the *front* part of the cord. Cut off the back root, and the part to which it is distributed loses its feeling. As we say in common language, it becomes *numb*, though it may *move* as well as before. Cut the front root, which is motion-producing, and the part to which it goes cannot move. It is *palsied*, though it may still feel acutely. The numerous nerves that spring from the spinal column are pretty well represented in Fig. 60.

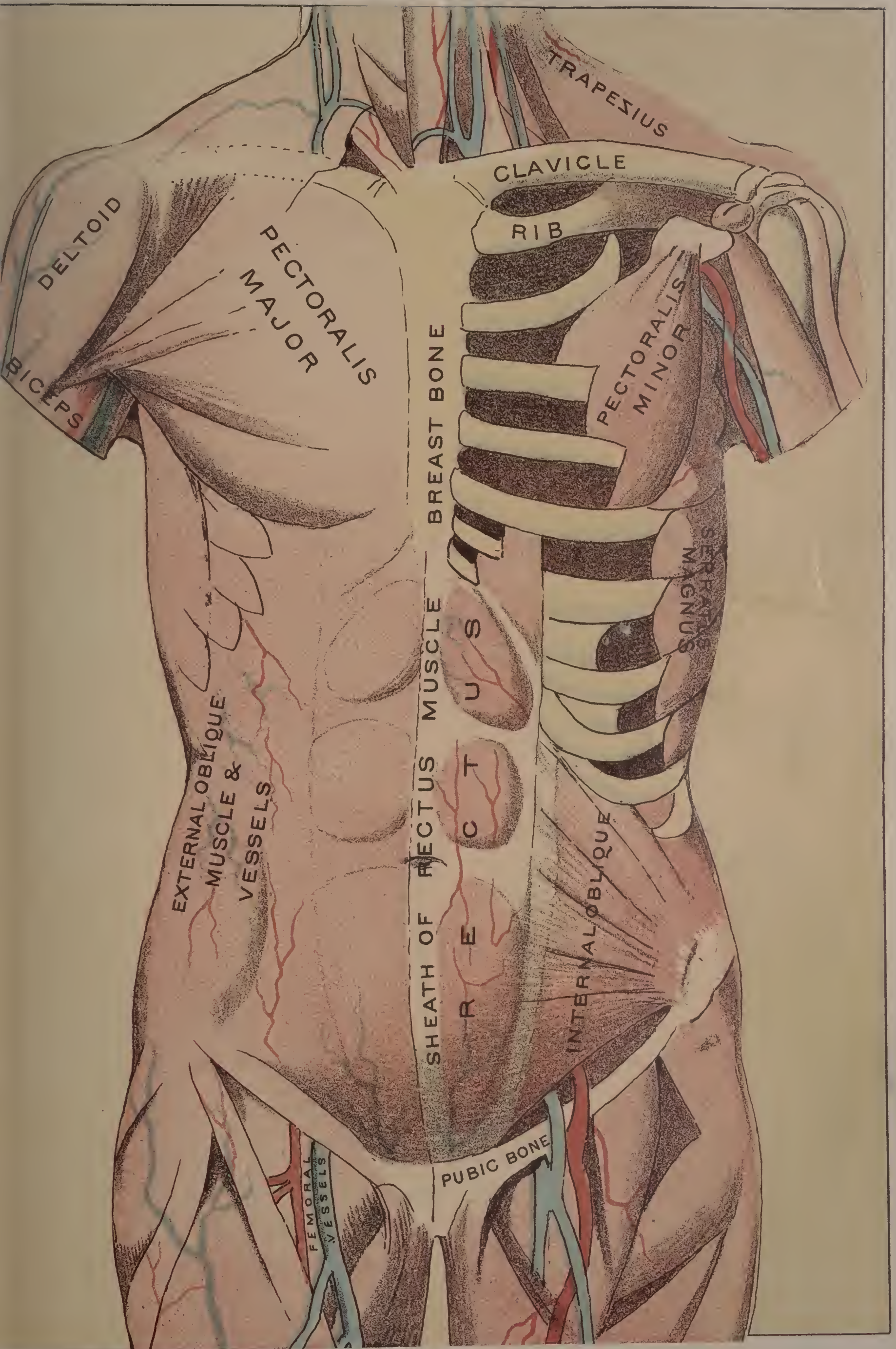
If the cranial nerves of motion which go to the face be cut, no emotion or passion can be expressed. The features will all be immovable, like statuary. To smile, to laugh, to frown, to give expression to the feeling of pity, or anguish, or love, is alike impossible. And yet a breath of air upon the face will be *felt* as readily as before. Paralysis, or palsy, as it is called, partial or general, is the result of injury upon few or many of these motion-producing nerves. Neuralgia, tic douloureux, etc., arise from some disease, perhaps inflammation, of the nerves of sensation.

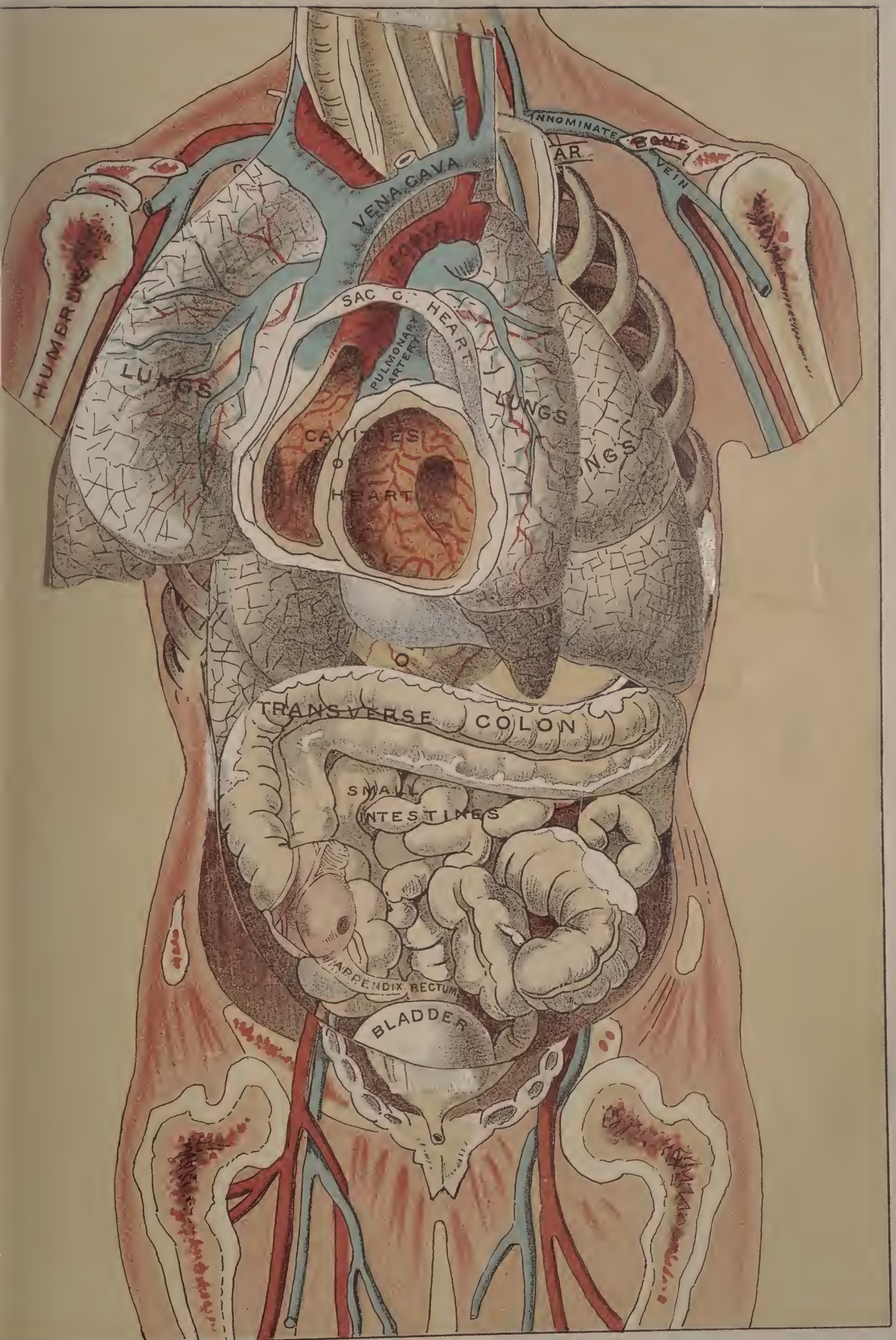


FIG. 60.

How the Mind gets Knowledge. Everything the mind knows of the external world, it learns through the the organs of sense, which communicate with it through these nerves. Thus, the nerves are acted on by external agents, and then they act on the brain and cause sensations. When the hand is burned the nerves of sensation run with the intelligence to the brain, which, quick as thought, through







the nerves of motion, despatches orders to the muscles to repel the injury.

Comparison. — The arrangement and operation of the nervous system are like those of the electric fire-alarm system of a city. The brain is the intelligent centre, like the central office. The nerves of sensation which carry to the brain, with electric speed, intelligence of what is going on outside, are like the wires which run to the central station from the several boxes. The quick carrying to the brain of any information of injury done to some part of the body, is like sending to the central station from an alarm-box the intelligence of fire in one of the districts. The rapid transmission of orders from the mind to the muscles is like flashing the alarm over the wires to every part of the city. And, finally, the powerful action of the muscles in warding off danger is like the dashing of firemen over the pavements and the energetic playing of the engines.

Sensations.

AN effect produced on the mind through a nerve is called a *sensation*. Hunger is a sensation. It is an effect produced upon the mind through a certain nerve by the condition of the stomach. Thirst, pain, heat, cold, are sensations in a similar sense. Nausea is a sensation produced by some injurious substance acting upon the coats of the stomach.

Strength of Sensation. — Some sensations are much stronger than others; some are very intense. A very strong sensation is called a feeling. It is common to say, "I feel cold," or, "I feel hot." We simply mean by this, that the temperature of the weather makes a very powerful impression upon us.

Kinds of Sensation. — Sensations are either pleasurable or painful. Pleasurable sensations arise from the proper exercise of some healthy part of the body; and they are a suitable reward for any care the mind may take of the corporeal organs.

The sensations arising from a proper amount of exercise are pleasurable. The muscles find a sort of enjoyment in action. He who leads a sedentary life, either from choice or necessity, loses much enjoyment. Hence, there is pleasure in labor; and the working-man, though often pitied by the wealthy, is generally the happiest of men. The eye and the ear, when directed to agreeable sights and sounds, derive the most agreeable sensations from exercise. The air of a beautiful spring-morning gives impressions which none can describe, but which all know to be delightful. These impressions are well fitted to reward us for taking at that season, in the open air, the exercise we so much need.

Moral Uses of Sensations. — How little we reflect upon the amount of happiness it is in our power to create by making agreeable

impressions upon others. A civil and polite address makes a pleasant impression. A kind word, fitly spoken, makes the heart glad. Heads of families might do much to increase the happiness of their domestics in the kitchen by meeting them with a pleasant countenance, and dropping in their ear, now and then, a word of approval. Such little acts of benevolence are easily performed, and they make the most agreeable and lasting impressions upon persons in the lower stations of life, — creating attachments, in fact, which end only with death, and which in hours of future sorrow, which come to all, may refresh us like springs of water in the desert.

“ Full many a shaft at random sent,
Finds marks the archer little meant;
Full many a word at random spoken,
May heal a wounded heart that's broken.”

SIR WALTER SCOTT.

In aiming to make agreeable impressions upon domestics, we should be governed by the simple desire to create happiness. Their sources of happiness are comparatively few. They spend their days below stairs, — shut out from a portion of the light of day, and from the refining influences of the drawing-room, — having little time for rest or for recreation. How unfeeling to treat such persons with harshness, to wear a frowning face in their presence, and thus wither the few flowers of happiness which bloom around them!

Every human being is endowed with the beautiful nervous organism of which I have spoken, and is daily receiving impressions, pleasurable or painful, from thousands of sources. In all the relations of life, it should be our aim to touch delicately this sensitive structure. Wives may add much to the happiness, and I may say, to the affection of their husbands, by always wearing a pleasant face; and the heart of the wife may be made light and glad by gentle words from the husband. We cannot but love those who make pleasurable impressions upon us, and we necessarily dislike such as impress us painfully. Most of the coldness and alienations which grow up between the heads of families, spring from the habit of one of the parties, of saying, or doing, or looking something which painfully impresses the other. A woman who habitually wears a “sour” face cannot be loved either by her husband or her children. The man or the woman who desires to be loved, must cultivate a manner, a look, a speech, a life, the whole scope of which is fitted to make pleasurable impressions upon others. It is against nature to love what gives us pain.

Agreeable Sensations a Source of Health. — Pleasurable sensations not only beget love, and increase happiness, but they add much to health. They exhilarate the spirits and drive away melancholy. Travelling promotes health and prolongs life, by the number and variety of the pleasing impressions it makes upon the mind.

Care of the Sick. — If the above statements be correct, how important that the sick should be so dealt with as to have none but

agreeable sensations made upon them. *Many a life has been sacrificed to the peevish temper of a nurse.* When the nerves are weak from disease, even slight causes make powerful impressions; and if these impressions are of a painful kind, the results are most deplorable. To treat harshly the sick, especially those whose nervous system is broken, implies either great thoughtlessness or extreme cruelty. A single harsh word, which would scarcely move one when well, may send the same person, when sick, almost to distraction. Every word spoken to persons in sickness should, therefore, be gentle and soothing. Every feature of the face should express either cheerfulness, or tenderness and pity.

As the painful impressions which disease is making tends to depress the spirits and create melancholy, it is not expected that persons when sick will exhibit as amiable tempers as when well; and for this all due allowance must be made.

Effect upon the Disposition.—This leads me to say that pleasurable sensations improve the temper and disposition. This is a fact of very great importance, and parents should never lose sight of it in dealing with their children. There are few children but would grow up amiable and useful members of society, were they dealt with in the gentle and tender manner which their young and impressible natures require. From the moment the young mind wakes to intelligence, it will be occupied with something. Parents and guardians should aim, therefore, to turn it to all those things which will impress it pleasantly, and at the same time do it no harm. Exercise, songs, playthings, flowers, —to these and other entertainments it should be led by gentle hands. No thoughtful parent will ever pain a child by harsh threats and denunciations, or shock it by an oath.

Bad Effect of Unpleasant Sensations.—If pleasurable sensations improve the health and temper, unpleasant ones do just the opposite. They break down the health and spoil the disposition.

They are intended to give us a warning of impending injury. Thus, we have painful sensations when we have overworked the body or mind. The sensation of weariness tells us that the muscles have worked as long as their good requires, and that they need rest. Were this sensation unheeded, exhaustion and entire prostration would be the result.

When fatigue begins to be felt, either of body or mind, the sensation may be dissipated by strong tea, or intoxicating drink, or opium; but to drive it away in this manner, for the purpose of working longer, is wrong, and leads, in the end, to disease or exhaustion. It was said that one of the most brilliant advocates of recent times was dependent upon opium for the stimulus to carry him through his extraordinary flights of eloquence; but his restless motion and nervous face reminded one that he had bent his bow very nearly to the snapping point, and that a sudden collapse of his vital powers, at no distant day, might be feared as the result of such tension.

Persons in affliction, whose spirits are depressed and broken by sorrow, should have their thoughts turned away from all sombre objects and contemplations. They should be taken into the open sunlight, and be diverted by the beautiful things of nature. They should visit cheerful society, and open their hearts to pleasurable impressions.

When we permit any part of the body to remain idle, neglecting to use it as much as we ought, unpleasant sensations remind us of our fault. The muscles, when unused, waste away and become feeble. This is sure to produce an uneasy, nervous state of feeling, which says to us as plainly as a sensation can, that the muscles are hungry for exercise, and that it is injurious to let them rest longer.

Need of a Healthy Brain. — In order that we may get correct ideas of the external world, it is necessary that the brain, the nerves, and the organs of sense through which sensations are made upon the mind, should be in a healthy condition. It is evident that if the instruments of sensation be diseased, the sensation cannot be natural, and will make a false report to the mind. It is of the highest importance, therefore, that the brain should be sound.

Improper Intermarriages. — This organ, like every other, may inherit disease from parents. Insanity, which springs from a diseased brain, is often hereditary. When both parents are diseased, the offspring are of course more liable to partake of their defects. Among the wealthy, and particularly among the royal families in Europe, nervous diseases and sterility are very common. This arises, in a great part, from intermarriages among blood relations, — a practice under which any people will degenerate, and finally perish. The wisdom of the Old Testament prohibition of marriage within certain degrees of consanguinity has been established by the observation of philosophers and the experience of mankind. Let those who will transmit to their descendants a sound mind in a sound body, observe the laws of life, and avoid all marriages with blood relations.

Need of a Good Supply of Blood. — For a proper performance of its duties, the brain requires and receives a larger supply of blood than any other part of the system. One-tenth of all the blood goes to this important organ. If the quantity or quality be materially lessened or changed, great disturbance of the brain follows. A large loss of blood occasions dizziness and fainting. If an atmosphere charged with too much carbonic acid gas be breathed, as in a deep well, the blood is not vitalized in the lungs, so as to sustain the brain, and unconsciousness soon follows. If the air be vitiated in any way, or have its oxygen extracted, as in large assemblies, where it is breathed over several times, it becomes unfit to support the brain, and the result is languid feelings, inability to apply the mind, headache, fainting, hysterics, and other nervous manifestations.

Ventilation. — This shows the great necessity of having dwellings, churches, and school-houses well ventilated.

Were a good system of ventilation adopted in all our churches, ministers would seldom preach to sleeping audiences. A congregation sitting in one of our places of public worship, where the air in a single afternoon is as many times used over as the minister's sermons are in a lifetime, can neither hear with attention, nor comprehend with clearness.

In many of our school-houses, the ventilation is quite as bad, and the consequences worse, because they are occupied six hours of the day instead of three, and five days of the week in place of one. In the small school-houses which our children filled to overflowing in former years, in which there was *no* ventilation, unless they happened to be blessed with an old-fashioned chimney and fire-place, the effects upon the nervous system of the children was deplorable. Many of the diseases which afflict the present generation of men and women had their origin in the bad air of those crowded nurseries of education.

Our dwellings were partly ventilated in olden time, when the open fire-place received the "back-log," the "top-stick," the "fore-stick," and other sticks to match; but since we have been warmed by the stove and the furnace we have known little of the luxury of pure air at the domestic hearth.

Need of Exercise for the Brain. — Health requires that the brain should be properly occupied with vigorous thought. The same reasons may be given for this as for the exercise of the muscles. It is governed by the same laws which apply to other parts of the system. Use improves its strength and vigor; idleness causes it to grow feeble. Of course the labor it is put to should be only reasonable in amount, and should not be too long continued at any one time. With the weakening of the brain, the whole bodily forces, and indeed the whole mental and moral character, fall into feebleness and decay. It is a great mistake to suppose that the cultivation and even vigorous use of the mind impairs health and shortens life. Just the opposite is true. Many of the most eminently intellectual men, who have worked their brains hard all their lives, have been distinguished for long life.

Bad Effect of Change in Circumstances. — No class of persons suffer more from nervous diseases and general ill-health than those who, having worked hard in early life, with little or no cultivation of the mind, are suddenly raised to wealth, and immediately drop all exercise, and fall into habits of indolence and luxury. The condition of such persons would be much less pitiable, did they take up books when they lay by the hoe or the broom. But they seldom do this. Many a woman, in early life, has felt the glow of health in every limb, and a thrill of pleasure, too, while scrubbing the floor on her hands

and knees, who has, in subsequent years, reclined in misery upon her damask-covered lounge, and wondered that she could not have the health of other days. Let her cultivate her brain, live temperately, and exercise in the open air, and life may again have real pleasures for her.

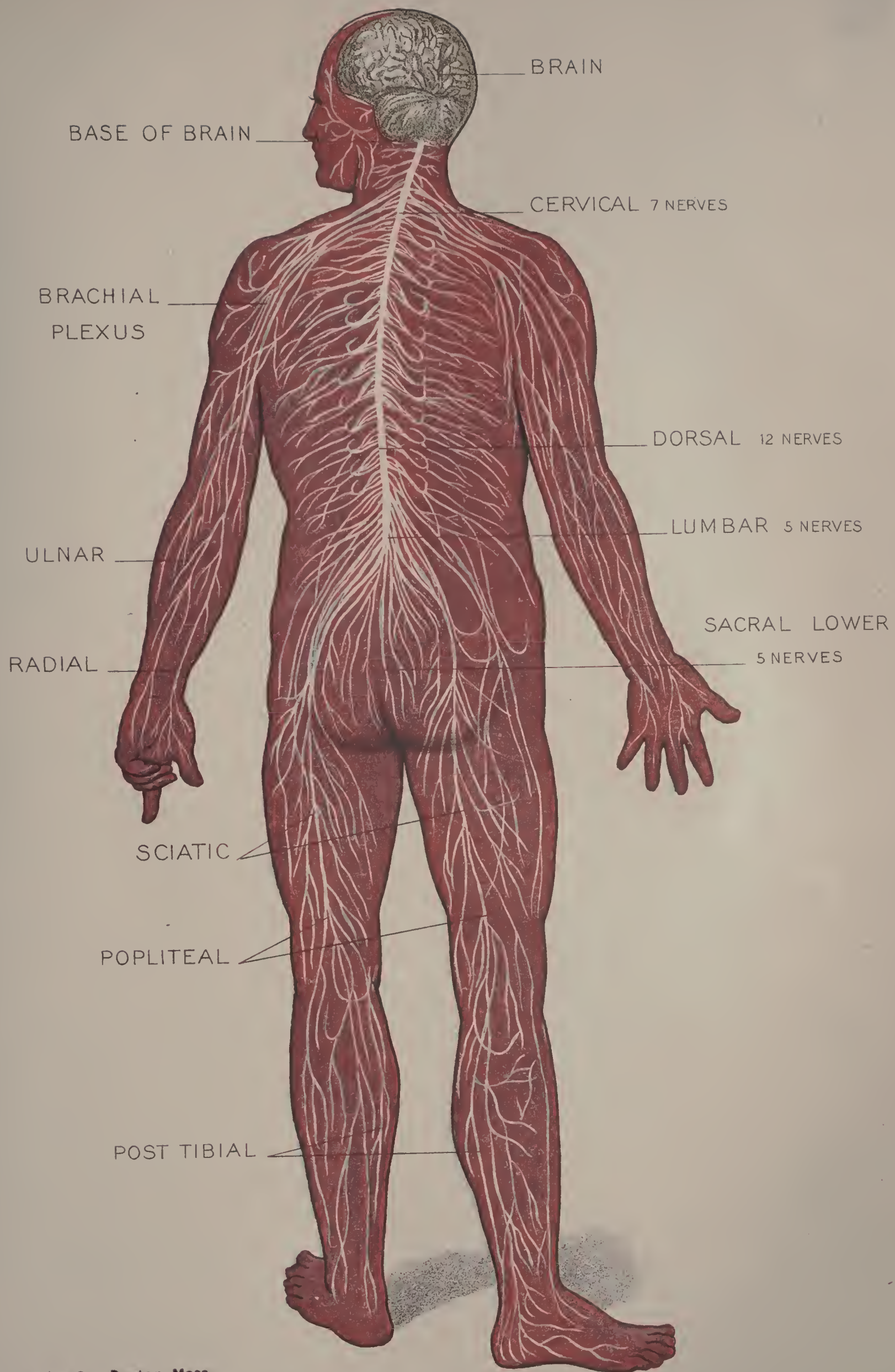
Discretion in Exercising the Brain. — In exercising the brain we must use discretion. We must not sit down in the morning, and ply it with work during the whole day, without rest. This would soon bring upon it disease, or premature decay. It should be worked only until it begins to show symptoms of fatigue. Then it should be permitted to rest; or, what is better, be turned to some new subject, of a lighter, or a different character. This often rests the brain better than to entirely suspend its action.

Overworking the Brain in Childhood. — Great care should be used not to exercise the brain too much in early life. Like other parts of the system, it is tender in childhood, and will not bear prolonged exertion. As a general thing, children are put to school too early, and made to work their brains too hard. Great mischief arises from this source. Children are born with larger brains now than formerly; and it is no uncommon thing to see upon a child of ten years, a head equal in size to that of an adult. Children run to brain. Precocity in development of brain and mind is common. The results of stimulating and hastening the unfolding of such minds are deplorable. In such children, the brain should be the last thing to be cultivated. We do not need to urge its growth. It will come forward fast enough in spite of us. Our chief aim should be to harden and fortify the general constitution, so that the brain which it is required to bear up and sustain may long be its crown and glory.

Yet parents are proud of their precocious children, and often reverse this rule. They do it thoughtlessly, and would be terribly startled could they suddenly look into the future and see the results of their folly. Could they do so, they would see inflammation and softening of the brain, epilepsy, insanity, paralysis, apoplexy, with all the horrors of undescribed and indescribable nervous affections, which, though without a name, have a terrible reality.

Old People's Brains. — Persons in advanced life should be particularly careful not to overwork the brain. In middle life it recovers easily from great fatigue. In the decline of life, its powers of recovery are feeble. A single exhaustion may cause its fatal collapse. Old age should be distinguished for gentleness and moderation. The journey of the down-hill of life should be made by short and easy stages, through regions of diversified beauty.

A Supply of Blood. — Every part of the system, when hard at work, needs and must have a very large supply of pure blood. Without this, it is torpid and inactive. To cause the blood to flow to any particular part, it must be exercised. The lumberman, when



Copyright, Physicians Publishing Co., Boston, Mass.

NERVES OF THE HUMAN BODY

in the forest in extreme cold weather, stamps his feet violently upon the ground, or beats them against a log, and whips his hands around his body, and in this way makes them red and warm with a new supply of blood. The stomach, when it has received a supply of food, begins earnestly to turn it over; and by this exercise, and the stimulus which the food supplies, it invites large quantities of blood to its vessels, and thus increases its power to work. But just in proportion that it draws the vital current to *itself*, and augments its *own* vital force, it diminishes the blood in *other organs*, and for the time being, unfits them for work. The same may be said of the brain and all other working organs.

From this it follows that only one organ, or set of organs, can work effectively at the same time, and that it is improper to put the brain to hard work immediately after a full meal, because the stomach then wants the blood to enable it to digest the food; and if the blood be called off to the brain, digestion will stop. Nor should the stomach be loaded with food directly after long and hard thinking; for the brain will yield up the blood to it only after its own excitement has had time to subside.

Sympathetic Nervous System.

THE object of this system seems to be to bind all parts of the body together, and to combine and harmonize their actions. It takes care that no part of the system acts in such a way as to injure any other part. It exerts a controlling influence over digestion, nutrition, absorption, the circulation, etc. These are natural processes which need to go on while the brain is asleep and cannot attend to them. The nervous system, of which I speak, presides over all those functions which are called involuntary, — so called because no act of the will is needed for their performance. Secretion, absorption, digestion, and the circulation of the blood, all have to go on while we sleep, as well as while we wake. Were an act of the will necessary to their performance, as in walking, eating, conversing, etc., then they would have to cease the moment the brain fell asleep, and death would be the result.

The sympathetic nerves apprise each part of the system of the condition and wants of every other part. When the lungs are inflamed, the stomach seems to be aware of it, and will receive no food, because this would aggravate the disease of the neighboring organs. Well would it be if human beings would exercise a like forbearance, and abstain from those acts of self-gratification which they know will injure their neighbors.

Effects of Nervous Diseases. — Before closing these observations, I wish to add a few words respecting the terrible effects of nervous diseases which characterize the present time.

That they are far more numerous and afflictive than in former

years, must be apparent to the most careless observer. They are nothing more nor less than the price we pay for a high civilization, and especially for our democracy. Among us, every man feels his individuality, and has a motive for thinking and doing his best. Thought and action are here unfettered; and if the race is not to the swift, nor the battle to the strong, every man acts as though he thought it was. The great excitement which the struggle for wealth kindles and inflames, deranges and shatters the nervous system to a shocking degree.

And wealth, when obtained, does its full share to weaken the nerves. It brings with it high living, indolence, loss of energy, dissipation, and a weakening of the whole moral and physical powers. It *need* not do this; but, in most cases, it does.

The result is, that, at least, every other person has some nervous disease, which makes life a misery rather than a blessing. The brain and nerves are too much developed in comparison with the development of the muscles. Half our boys and girls have heads as large as men and women. It is common to see a boy or a girl at ten talking and acting like a man or woman. I do not mean by this, that they imperfectly imitate the actions of older persons. It seems to be natural to them. Their brains are prematurely developed, and their acts and thoughts have the maturity of adult life.

What is Coming? — What will be the result of this state of things, no man can predict. I sometimes think the race will break down; that that which was intended to be its ornament and strength will be its destruction. I hope not. Yet there is danger of it. Nothing can save us but the wisdom to adopt such means as will develop all parts of the system alike. No race of men can stand for many generations such a strain upon the nervous system, unless better means are adopted to counterbalance its evil effects than are now used in the United States. We have got to pause in our swift career, and look after our health, or we shall become a nation of maniacs. No proof is needed of what is here said.

Hopeful Considerations. — It is proper to say, the considerations here presented, terrible as they are, are mitigated in some measure by others of a more hopeful character.

Physiology and the laws of life are now better understood than at any former period. These subjects are getting into our common schools, and are engaging the attention of our youth. Declining health has already made us think more of the means of preserving it, — such as diet, exercise, bathing, travelling, and amusement. To encourage and intensify this hopeful direction of the public mind, I propose to devote a few pages to these subjects.

Food and Digestion.

FROM the earliest dawn of existence to the last moment of life, our bodies are constantly changing. Old particles of matter, when they are worn out, leave their places and are thrown out of the system. Were this the whole of the matter, our bodies would soon waste away, and that would be the end of us. But as fast as the old materials are thrown away, new ones take their places; and it is solely out of our food that these new materials are formed.

In order that the food may be well digested, it must first be broken into small particles in the mouth. The act of chewing it is called mastication. During this act, if it be well performed, a large quantity of spittle, called saliva, flows out of a number of glands, called salivary glands, and mixes with the food, forming with it a soft mass. In this condition, it is thrown backward into the top of the throat, called the pharynx. Here, a little cartilage, called the epiglottis, drops down upon the opening into the top of the windpipe, and prevents its entrance into the breath-passage; and it is pushed along into the gullet, a tube which runs down behind the windpipe and lungs, and which physicians call the *œsophagus*. Here a succession of muscular bands, circular in shape, contract upon it, one after another, and force it down into the stomach.

It is important that two things should be secured while the food is in the mouth, namely, that it should be reduced to a good degree of fineness by chewing, and that a proper amount of saliva should be mixed with it. If the chewing were not necessary, teeth would not have been given us; and the salivary glands would certainly not have been put in the mouth, if the mixing of water with our food would serve the purposes of digestion as well.

Eating too Rapidly. — Americans have fallen into a pernicious error in eating their food too rapidly. Time is not given to chew it sufficiently to excite a full flow of saliva; and as it cannot be swallowed in a dry state, it is not uncommon to see persons taking a sip of water after every second mouthful, to enable them to force it into the stomach. It is a habit we Americans have of cheating ourselves both of the pleasures and the benefits of eating; for the only real pleasure of eating arises from the flavor of food while retained in the mouth, and the only benefit we can derive comes in consequence of its proper digestion.

The food when received into the stomach is in the same condition as when taken into the mouth, except that it is, or should be, ground fine by the teeth, and well mixed with saliva.

The Gastric Juice. — The stomach, like the mouth, the windpipe, and the gullet, is lined by a mucous membrane. The chief office of this membrane is to secrete, or take out of the blood, a fluid which we call gastric juice, which means stomach juice, from the Greek

name of stomach, γαστέρ (gaster). This fluid has not much smell or taste, and looks like spring water. It has a powerful effect upon food, which, when mixed with it, soon undergoes an important change, which is apparent to the taste, the smell, and the sight. The nature of the gastric juice and how it produces its effect upon food are not certainly known; but it contains two active elements, — a free acid and pepsin, whose function is to dissolve the nitrogenous parts of the food and convert them into albuminose or peptone. The albuminose is absorbed by the coats of the stomach and enters directly into the circulation; while the sugar and fat pass on to the duodenum to be acted upon by the bile, the pancreatic juice, and other secretions of the bowels.

Too Much Cold Water at Meals. — There are some interesting facts connected with the formation of this fluid, of which it is important that every person should be apprised.

Its quantity and quality depend on the amount and healthfulness of the blood which flows to the stomach during the first stage of digestion. It is, therefore, injurious to drink large quantities of very cold water with, or immediately after, our meals; as this will chill the stomach, and repel the blood from its vessels, so that but little of the juice can be formed. Digestion, in such case, must be imperfect.

This Fluid not Secreted Without Limit. — This fluid does not flow into the stomach continuously, but only when we swallow food, and then not as long as we please to eat, but merely till we have taken what the system requires. If, in the amount we take, we go beyond the wants of nature, there will not be fluid enough formed to dissolve it, and the whole will be imperfectly digested, and be a source of injury rather than benefit. This should teach us to be careful that our food be only reasonable in amount.

Not Secreted in Sickness. — When we are sick, the gastric juice is either not formed at all, or only in small quantities. Whatever may be our feelings of lassitude, and however much we may appear to need food, at such times, it is useless to take it, for it cannot be digested, and will only aggravate our disease. If the illness be only slight, the fluid will be formed to some extent, and food may be taken in proportion.

Its Secretion Favored by Cheerfulness. — A cheerful disposition, and a happy, lively frame of mind, are highly favorable to the production of the gastric juice; while melancholy and anger and grief and intense thought of business, at the hour of meals, greatly hinder its natural flow.

This should teach us to go to our meals with light hearts, and to make the family board a place of cheerful conversation, and of a light and joyous play upon the mirthful feelings of all present. Should any of the family circle be in the habit of using vinegar as a condi-

ment, we should never be guilty of compelling them to extract it from our faces. A vinegar face is not easily excused anywhere; at the table it is unpardonable. A single countenance of this description will throw a gloom over a tableful of naturally cheerful persons; and if habitually present at the board, may finally spoil the digestion of half a dozen, and entail dyspepsia upon them for life.

The stomachs of the sick pour out but very little of this fluid, and they can take but a small amount of food. It is cruel to deprive them of the power of digesting that little by treating them harshly, and filling them with gloomy and desponding feelings. I therefore repeat the substance of the advice given on a previous page: Deal gently with the sick.

How all this is Known. — As the stomach is wholly concealed from view, the reader will very naturally ask how it is known that the gastric juice is poured into it in certain states of the mind, etc., and withheld in others. It certainly could not have been so accurately known, had it not been for an accident which opened the living and working stomach to the inspection of Dr. Beaumont, a United States Surgeon. A young man by the name of Alexis St. Martin, a Canadian by birth, but then in the State of Michigan, had a large part of his side torn away, and a hole of considerable size made into his stomach, by the accidental discharge of a gun. To the surprise of his surgeon, St. Martin recovered; and the edges of the wound in the stomach refused to grow together, preferring rather to fasten themselves to the borders of the breach in the side, thus leaving the passage open. A kind of curtain grew down over this, which prevented the food from falling out. Dr. Beaumont, taking advantage of this state of things, instituted a series of valuable experiments, by lifting the curtain, and inserting various articles of food, and witnessing the process of digestion.

Movement of the Stomach. — The presence of food in the stomach causes its muscular coat to contract and throw it about from side to side, mixing it thoroughly with the gastric juice, and reducing it to a pulpy mass, called *chyme*. This, as fast as it is properly prepared, passes through the pylorus into the upper bowel, or *duodenum*, called also the *second stomach*.

Chyme. — A certain witty professor of anatomy and physiology was in the habit of asking his class if they ever saw any chyme; and when they answered, no, as they often did, he called their attention to what is occasionally to be seen in the morning, upon the sidewalks, where drunken men have held themselves up by lamp-posts, and left the contents of their stomachs.

The pylorus, or opening into the bowel, has a very singular and wise instinct, which is worthy of remark. When a piece of food, which has not been digested, attempts to pass into the bowel, the moment it touches the inner surface of this orifice, it is instantly

thrown back by an energetic contraction; though a portion of well-prepared chyme, touching the same opening immediately after, is allowed to pass unchallenged.

Chyle. — The chyme, when it reaches the duodenum, seems to cause the liver to secrete bile, and the pancreas to produce pancreatic juice. These two fluids are conveyed into the upper portion of the second stomach, and there are mixed with the chyme, and cause it to separate into a delicate, white fluid, called *chyle*, and a residuum, which, being worthless, is pushed onward, and thrown out of the body.

Bile in the Stomach. — Most persons suppose that the bile is generally found in the stomach; but this is a mistake. It is thrown up by vomiting, because in that act, the action both of the first and the second stomach is *reversed*, and the bile is forced up from the duodenum — taking a direction the opposite of its usual course.

Destination of the Chyle. — The chyle being separated from the dregs, is pushed onward in its course by the worm-like motion of the intestine; and as it passes along, it is gradually sucked up by thousands of very small vessels, whose mouths open upon the inner surface of the bowel. These little vessels are called *lacteals*, from the Latin word *lac*, which means milk, because they drink this white, milky fluid. Fig. 61 shows a section of the small bowel, turned inside out, and covered with the villi, or root-like filaments, closely set upon its surface, for absorbing the chyle, and at the bottom of which the lacteals take their rise.

In these lacteals, and in the mesenteric glands, the chyle is gradually changed, so as to approach nearer and nearer to the nature of the blood; but precisely what the change is, or how it is effected, is not known. Several



FIG. 61.

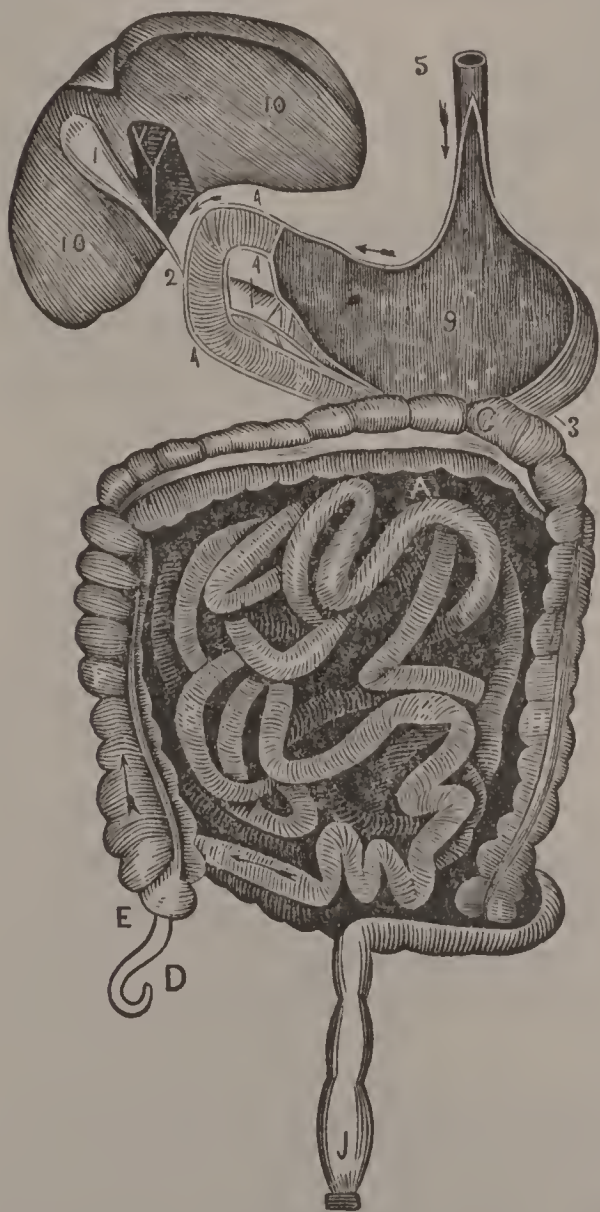


FIG. 62.

learned men have published their theories upon these points, and the writer has opinions upon them; but it is not worth while to trouble the reader with them. It is sufficient to say that the fluid is carried by the lacteals to the thoracic duct, through which it is conveyed into a large vein at the lower part of the neck, where it is poured into the blood, and becomes, after going through the lungs and experiencing another and a vital change, the material out of which our bodies are daily and hourly new-created.

Fig. 62 gives a general idea of the stomach, bowels, etc.: 9, being the stomach; 10, 10, the liver; 1, the gall-bladder; 2, the duct which conveys the bile to 4, which is the duodenum; 3, is the pancreas; 5, the œsophagus; A, the duodenum; B, the bowels; C, the junction of the small intestines with the colon; D, the appendix vermiformis; E, the cœcum; F, the ascending colon; G, the transverse colon; H, the descending colon; I, the sigmoid flexure; J, the rectum.

Nature and Destination of Food.

THE food which man requires for his support and development is of two kinds, inorganic and organic. The first of these embraces certain mineral substances, as common salt, sulphur, phosphorus, iron and lime, either in combination or separate.

These are not generally reckoned as aliments, and yet no human being can live without them. In their absence, the body decays, disintegrates, and perishes. Common salt is composed of muriatic acid and soda. The first is an important ingredient in the gastric juice, and the latter promotes the secretion of bile. Sulphur is found in several of the tissues, particularly in the muscles. Phosphorus, united to fatty matter, is highly honored in forming a portion of the brain and nerves, and is also combined with oxygen and lime to make the earthy or hard part of bones.

Found in Food. — These articles it is not necessary often to introduce into the system in a separate state. They are contained, in larger or smaller proportions, in most articles of food; and man always suffers, as all animals do, from their absence. Common salt is found in the flesh of animals, in milk, and in eggs. It is not very abundant in plants; and we all know how eagerly domestic animals devour it when it is given to them, and how constantly wild cattle resort to the salt springs, which, in the great West, are called “buffalo licks.” Lime exists in nearly all animal and vegetable substances. In wheat flour we get it in combination with phosphoric acid, that is, as phosphate of lime. Lime exists too, in the state of carbonate and sulphate, in all hard water. Iron is found in the yolk of eggs, in milk, in animal flesh, in potatoes, pears, cabbages, mustard and other articles. Sulphur we get in flesh, eggs and milk; and, as sulphate of lime, in spring and river water. Phosphorus is derived from eggs and milk; and flesh, bread, fruits, and husks of grain,

commonly called bran, contain even a larger proportion than we need in our diet.

Organic Food. — The organic elements of man's food, which in bulk embrace almost the whole of it, remain to be considered. In the animal economy they serve two great purposes. A part of the articles which compose them are blood-formers, out of which all the tissues are made, — the other part produces fat, which serves to warm the body by being burned with oxygen. These articles are derived partly from the vegetable and partly from the animal kingdom.

Divided into Four Groups. — For convenience, these articles may be divided into four groups. For the first, sugar stands as a type. We therefore call it the *saccharine* group. It embraces starch, gum, and the fibre of wood. These articles may all be converted into sugar by a simple chemical process. Figure 63 gives a microscopic view of the granules of starch.

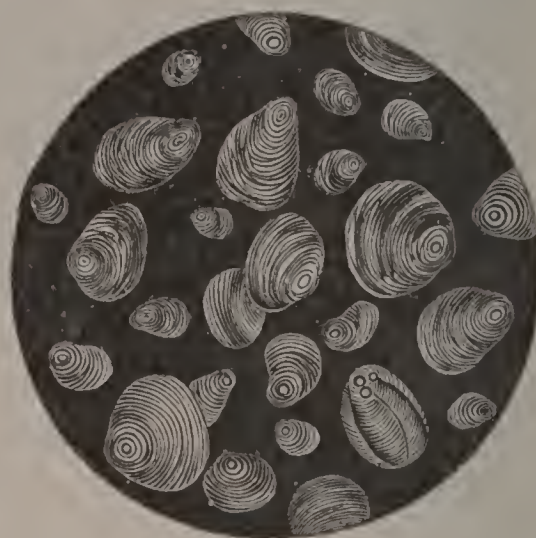


FIG. 63.

The *second group* we call the *oleaginous*. It is composed of oily substances, from whatever source derived, whether the animal or the vegetable world.

The *third group* is the *albuminous*. A good type of it is the white of egg.

The *fourth* is the *gelatinous*, or *jelly* group.

First and Second Groups, Supporters of Respiration. — The articles composing the first and second groups are analogous in composition, all containing *oxygen*, *hydrogen*, and *carbon*. They are what Liebig calls supporters of respiration; the meaning of which is, in more comprehensible terms, that they are *supporters of combustion*. They are the *fuel which warms us*. They keep the fires going, from which arises all the heat we have in our bodies. But they are destitute of nitrogen, and, on this account, they are not blood-formers, and cannot be worked into flesh. Hence, man cannot live on them.

The food articles embraced in the third and fourth groups also contain oxygen, hydrogen, and carbon; and to these they add *nitrogen*. This fourth component part, which forms only a small portion of them, gives them, for some reason never explained, the peculiar quality of producing blood and flesh. They are the raw materials, out of which our bodies are reconstructed from day to day.

Feed a man ever so largely upon sugar, starch, gum, and oils, and he will starve as certainly as if he were allowed nothing but water.

Names of Two Great Divisions of Food. — The possession or non-possession of nitrogen, then, is what distinguishes from each other the two great classes of food-articles. Those which contain nitrogen

have been called *nitrogenized*, and those which are destitute of it, *non-nitrogenized* compounds. As nitrogen is often called *azote*, the former class are more frequently named *azotized*; the latter, *non-azotized*.

Let the reader now fix it in his mind that the azotized articles of food produce blood and flesh; the non-azotized, heat; and he will have the key to understand much of what is to be said, and likewise to unlock many of the mysteries of diet.

Nutrition Table.—Taking human milk as the standard, and expressing the amount of nitrogen it contains by 100, the following table shows the relative amount of nitrogen in the principal flesh-producing articles of food, and consequently their power of forming the tissues:—

VEGETABLE.

Rice	81	Potatoes	84
Rye	106	Turnips	106
Corn	125	Carrots	150
Barley	125	Peas	239
Oats	138	Beans	320
Wheat	144		

ANIMAL.

Human Milk	100	White of Egg	845
Cows' Milk	237	Herring	910
Oyster	305	Haddock	816
Yolk of Eggs	305	Pigeon	756
Cheese	331-447	Lamb	833
Eel	428	Mutton	852
Pork-Ham	807	Veal	911
Salmon	610	Beef	942

Other Standards of Value.—We must not infer that those articles which have most nitrogen are necessarily best adapted for human diet because they are the most effective blood-producers. In deciding the value of an article for food, other things are to be looked at besides its nutritive qualities. Those which are poor in nitrogen, are rich in carbon and hydrogen, and are well fitted to serve the double purpose of nourishing and warming the body at the same time. The fitness of an article for diet depends very much upon the ease or difficulty with which it is digested and assimilated. If an article having a great deal of nitrogen, and being very nutritive, is with great difficulty reduced in the stomach by the digestive process, it may be much less desirable for food than one which is digested and assimilated easily, but is much poorer in nutritive qualities.

Heat-generating Food Articles.—The reader has before him the principal blood and tissue-forming food articles. Those which we reckon as fuel, or heat-generators, are chiefly oils, sugar, starch, farina, sago, arrowroot, tapioca, gums, etc. These are less essential than the others; for the blood-forming articles have within them the elements out of which fat is formed in the process of assimilation; for

many of them contain starch; and this, in the human organism, is changed into fat. The amount of starch in some of these articles is as follows:—

Wheat flour, good quality, 100, contains 65 to 66 parts in 100 <i>pure starch</i> .					
Wheat	108	“	53	“	56
Barley meal	119	“	64	“	65
Barley	130	“	37	“	37
Rye	111	“	44	“	47
Buckwheat	108	“	43	“	44
Indian Corn	138	“	65	“	66
Rice	171	“	85	“	86
Peas	69	“	38	“	39
White Beans	59	“	37	“	38

In the Nutritive Food Articles, there is a fixed relation existing between the elements of the tissue-formers and the heat-producers which they contain. Out of a few of them Baron Liebig has constructed the following table:—

For every ten parts of blood and tissue-formers there are, —

In Wheat flour, 10	46	In Barley, 10	57
In Rye meal, 10	57	In Rice, 10	123
In Oatmeal, 10	50	In White potatoes, 10	86
In Buckwheat, 10	130	In Blue potatoes, 10	130

Diet a Complex Subject.—From the facts and tables now presented, it appears that the question of diet is one of complexity; and that the determination of its several points requires that a number of things should be taken into the account. First, in deciding the usefulness of any article, we may inquire respecting —

Its Digestibility.—If an article be not digestible, it is of little consequence how much or how little albumen, starch or nitrogen it may contain. The first and most important inquiry respecting it is, is it *digestible*? If not, it is to be rejected; for, whatever other qualities it may have, it can only injure the stomach and embarrass the whole system.

The following table will be useful to the reader, though I do not set it down as reliable in all cases. There is often a great difference in the ease with which different stomachs will digest the same food. Many stomachs are afflicted with what is called an idiosyncrasy,—a habit, peculiar to itself, of rejecting or refusing to digest some one or more articles which are acceptable to all other stomachs. This table shows the length of time required for digesting the several articles in the stomach of St. Martin, as shown by the experiments of Dr. Beaumont:—

Articles.	Preparations.	Time.	Articles.	Preparations.	Time.
		h. m.			h. m.
Rice	Boiled	1 —	Pork, recently salted	Raw	3 —
Pig's feet, soused	Boiled	1 —	Soup, chicken	Boiled	3 —
Tripe, soused	Boiled	1 —	Oysters, fresh	Roasted	3 15
Trout, salmon, fresh	Boiled	1 30	Pork, recently salted	Boiled	3 15
“ “ “	Fried	1 30	Pork steak	Boiled	3 15
Apples, sweet, mellow	Raw	1 30	Corn bread	Baked	3 15
Venison, steak	Broiled	1 35	Mutton, fresh	Roasted	3 15
Sago	Boiled	1 45	Carrot, orange	Boiled	3 15
Apples, sour, mellow	Raw	2 —	Sausage, fresh	Boiled	3 20
Cabbage, with vinegar	Raw	2 —	Beef, fresh, lean, dry	Roasted	3 30
Codfish, cured, dry	Boiled	2 —	Bread, wheat, fresh	Baked	3 30
Eggs, fresh	Raw	2 —	Butter	Melted	3 30
Liver, beef's fresh	Broiled	2 —	Cheese, old, strong	Raw	3 30
Milk	Boiled	2 —	Eggs, fresh	Hard boiled	3 30
Tapioca	Boiled	2 —	“ “	Fried	3 30
Milk	Raw	2 15	Flounder, fresh	Fried	3 30
Turkey, wild	Roasted	2 18	Oysters, fresh	Stewed	3 30
“ “	Boiled	2 25	Potatoes, Irish	Boiled	3 30
“ domesticated	Roasted	2 30	Soup, mutton	Boiled	3 30
Potatoes, Irish	Baked	2 30	“ oyster	Boiled	3 30
Parsnips	Boiled	2 30	Turnip, flat	Boiled	3 30
Pig, sucking	Roasted	2 30	Beets	Boiled	3 45
Meat hashed with } vegetables }	Warmed	2 30	Corn, green, and beans	Boiled	3 45
Lamb, fresh	Broiled	2 30	Beef, fresh, lean	Fried	4 —
Goose	Roasted	2 30	Fowls, domestic	Boiled	4 —
Cake, sponge	Baked	2 30	“ “	Roasted	4 —
Cabbage-head	Raw	2 30	Veal, fresh	Broiled	4 —
Beans, pod	Boiled	2 30	Soup, beef, vegeta- } bles, and bread }	Boiled	4 —
Custard	Baked	2 45	Salmon, salted	Boiled	4 —
Chicken, full-grown	Fricasseed	2 45	Heart, animal	Fried	4 —
Apples, sour, hard	Raw	2 50	Beef, old, hard, salted	Boiled	4 15
Oysters, fresh	Raw	2 55	Pork, recently salted	Fried	4 15
Bass, striped, fresh	Broiled	3 —	Cabbage, with vinegar	Boiled	4 30
Beef, fresh, lean, rare	Roasted	3 —	Ducks, wild	Roasted	4 30
“ steak	Broiled	3 —	Pork, recently salted	Boiled	4 30
Corn cake	Baked	3 —	Suet, mutton	Boiled	4 30
Dumpling, apple	Boiled	3 —	Veal, fresh	Fried	4 30
Eggs, fresh	Boiled soft	3 —	Pork, fat and lean	Roasted	5 15
Mutton, fresh	Boiled	3 —	Suet, beef, fresh	Boiled	5 30
“ “	Boiled	3 —	Tendon	Boiled	5 30

This table may be considered as giving a general idea of the relative digestibility of the food-articles contained in it. If not found exactly right in each individual case, it can be rectified by experience. The experience of no other individual's stomach will ever be found precisely like that of St. Martin's, — though in its general features, it may be sufficiently similar to make his valuable. The general principles of conduct may be learned from the experience of others. The particular application must come from our own experience and reason.

Digestibility Influenced by Amount.— The rapidity with which any article is digested will vary with the amount taken. A larger quantity than is called for by the wants of the system will be digested more slowly than the proper amount; while, on the other hand, an insufficient supply begets an inability to reduce in the stomach even the small quantity taken. We may err in taking too

little food as well as in taking too much; though the former error is much less likely to occur than the latter.

Choosing Food in Ill Health.—But in deciding the *kind* and *amount* of food we must be guided not only by its digestibility, but by the state of the health.

If we find the stomach apparently in good working condition, capable of dissolving properly whatever is submitted to its action, and yet we are for some cause losing flesh and strength, we should resort not only to the most nutritious of the albuminous group of the azotized articles, but likewise to the oleaginous group of the non-azotized. We want a great amount of nutriment, and we need oils to make fat. This is the kind of food generally wanted in constitutional consumption.

In fevers, but little food can be disposed of at best; and that little must be chosen with reference to its mildness and its unstimulating qualities. Generally the farinaceous or starchy articles are most suitable, because they have no stimulating and irritating qualities, and especially because they furnish fuel to be burned with oxygen, and thus take the place of the animal tissues, which are being rapidly consumed with this devouring element. In fever, oxygen is literally burning up the body. In this state of the system, this element acquires, by some means, a singular affinity for the tissues; and, uniting with them rapidly, forms a true combustion. The physician who throws to this devouring agent some of the mild, non-azotized articles which offer it stronger affinities than it finds in the tissues, is as wise as he who tosses his dog to a hungry lion to avoid being devoured himself.

Exercise to be Considered.—In deciding the diet, the amount of exercise is not less important to be considered than the health. The farmer, who works in the open air, and uses his muscles a great deal, wants considerably more nutritive, as well as more combustive, food than one who leads a sedentary life. Of course there is a great deal more waste of the tissues, and he requires more of the flesh-forming articles; and as he breathes deeper, and takes in more oxygen, he needs more of the supporters of respiration,—the sugars, oils, and starchy aliments.

Beans.—By turning to the table which shows the amount of nitrogen in the different food-articles, the reader will see that *beans* are rich in this element. They are, therefore, excellent food for working men, who are obliged to make great use of their muscles. Our fathers, who broke and subdued the rocky soil of New England, showed wisdom even in their instincts in taking so large a portion of their aliment from the bean,—especially as they *oiled* it with the fat of pork. But for the hard-working *student*, who daily makes heavy drafts upon his brain and nervous system, beans and peas are an improper diet. They contain no *phosphorus*, in the shape of

phosphate of lime ; and no brain can work hard without a due supply of phosphorus, which forms a part of its substance.

Unbolted Wheat Flour.—For the man who uses his brain a great deal, there is no other *one* article of food equal to bread made from unbolted wheat flour. Fine wheat flour is little better for him than beans, because the miller has robbed it of much of the phosphorus, which is found chiefly in the hull or bran.

I mention only two or three articles of food as specimens. By looking over the tables furnished, and reasoning upon the whole in the way I have done upon these few, the reader can give every article something like its proper value in most circumstances.

Climate.—If health and exercise should influence us in choosing the kind and the amount of food, *climate* must do so quite as much.

In the frigid climate of high latitudes, it is necessary that a great deal of heat be produced in the body, in order to avoid perishing with cold. There is no mystery now, as there once was, about the production of this heat. It comes from the burning of carbon and other substances in the body, where they unite with oxygen, and make just as real a fire as that which warms our houses. Oils, sugar, starch, gums, etc., are largely composed of carbon, and readily unite with oxygen in the body. This is the reason they are reckoned as *fuel*, and are called *supporters of combustion*. And for this reason, they require to be largely consumed in very cold climates. The instincts of men seem to lead to the same conclusion, for the dwellers in all high latitudes consume great quantities of oils and fats. The amount of train-oil, tallow, the fat of seals and other animals, devoured by the Laplanders, Kamtschatkans, and other northern people, is truly wonderful.

In hot countries, the fundamental rule for preserving the health is to keep the body cool. Without observing this rule, the strongest will often fall victims to the climate in low latitudes. But to keep cool, of course all the heat-producing articles of food should be avoided. Particularly all alcoholic drinks, which are powerful supporters of combustion, should be rejected. Rice and the various fruits form the most suitable articles of diet.

The great sacrifice of life witnessed among the early emigrants to California, was the result chiefly of using ardent spirits and heat-producing food while crossing the Isthmus, which, to a northern constitution, is much like a vast oven, heated to a temperature suitable for baking bread. There are few persons, with tolerable health and strength, but could safely endure the hottest climate if they would avoid alcoholic liquors and confine themselves to an abstemious vegetable and fruit diet.

Bayard Taylor's Opinion.—The distinguished traveller, Bayard Taylor, reports that while spending a few days in a heated part of Africa, he lived as the inhabitants did, pretty much entirely upon the

flesh of well-fatted sheep ; and that he enjoyed, meantime, excellent health and strength. From this he concludes that animal food is as suitable in hot climates as in cold.

It is a pity a man of such excellent parts as Mr. Taylor should have allowed himself to rear so tall a structure upon so narrow a foundation. That he could live on flesh in so hot a region, and not be made sick, only proved that he had a fine constitution, and that his health was not easily disturbed ; and when he attempted, from his limited experience of a few days, to reason against the established facts of science, and against the well-attested laws of life, he did it evidently without reflecting that he was in a field of thought which he never had occasion to cultivate.

The great Jewish Lawgiver doubtless had a reason for prohibiting pork to the Jews. Whatever that reason was, the prohibition had a wise bearing upon the health of the people. Palestine has a hot climate, in which pork-fat is an improper diet.

More Fat in Winter.—It follows from what has been said, that a more fatty as well as stimulating diet is needed in winter than in summer. But the change should be made gradually. When cold weather approaches, the food should become more nutritious and warming by little and little. The exercise should likewise be increased.

Even the lower animals act upon this plan. In the fall, squirrels eat nuts, which are full of oil, and grow fat upon them.

The instincts of men move in the same direction. It is in the fall that the hog, the ox, and the poultry are killed ; and in the winter that they are largely feasted upon and enjoyed. Upon such food, combined with various sorts of starch, man fattens ; and a good supply of fat, deposited in the cells, is equal, in keeping out cold, to a layer of cotton batting, — to say nothing of the fire kept up within the body by the burning of such fuel. As hot weather comes on, we gradually lay aside these fattening articles (or ought to), and return to the watery vegetables and fruits, such as squash, string-beans, strawberries, currants, etc.

Few of us, I apprehend, would suffer from heat in summer, if we could persuade ourselves to abandon stimulating and fire-producing food, and confine ourselves pretty much to a cooling and succulent diet. Diarrhœas in summer are not induced by eating wholesome vegetables, but by combining them with large quantities of animal food.

The State of the Mind.—This should by no means be overlooked in choosing the kind and the amount of food. If we have lost friends, or heard desponding news, or experienced calamities of any kind, we must, during the first hours of the shock, or even during the first days, if the affliction be heavy, partake very sparingly of food. The stomach is in no condition to receive it. The brain lies pros-

trate under the stroke, and the stomach, in sympathy with it, asks for a day of sorrow and fasting. Disturb it not.

Heat-producing Food Incompatible with Excitement.—It is folly to take heat-producing aliment when laboring for days under high excitements. During political campaigns, when the blood of politicians is at the boiling point, the diet should be unstimulating, — containing very little animal flesh, and not much combustive food. Many a man has died of apoplexy, or of heart-disease, by putting on the steam when his blood was up. Whenever we have a day of uncommon excitement to pass through, we should always begin and end it with an unusual degree of abstinence as to the amount of food taken, and with special care that the articles be of the highest kind.

Anger Demands Abstinence.—Anger is a passion which especially unfits the stomach for doing much work. If it occur often, or be protracted, but little food should be taken. Those who indulge it have a double cause for abstinence. Both their folly and their stomachs call for a fast.

Food Adapted to Different Periods of Life.—Food must vary in different periods of life. The infant needs a fattening diet; and this has been supplied in the milk of the mother, which contains more *butter* (the fattening portion) than the milk of any other animal. But as the infant has much less exercise than the young of animals, its flesh is not wasted, and it does not require so much *azotized* food, that is, the reader will remember, food with *nitrogen in it*. Accordingly, it will be seen by looking at the table on page 70, that human milk has much less of this element than that of the cow. As the child grows up, and begins to take active exercise, indoors and out, it wants more solid food, and teeth make their appearance to masticate or chew it.

In Youth and Manhood, the great amount of exercise usually taken calls for larger supplies of azotized aliment, — beef, mutton, pork, fowl, fish, wheat-flour, corn-meal, rye-meal, potatoes, turnips, peas, beans, etc. This is the working part of life, when the tissues are rapidly wasted by action, and the *flesh-forming aliments* are wanted to keep them good.

In Old Age, the exercise is diminished, the blood circulates more slowly, and the body grows cold. Now is the time to resort to *non-azotized* food, — oils, fats, the various kinds of starch, sugar, and the like. These will furnish fuel to warm the sluggish blood, and will invest the body with fat, which will serve the purpose both of a cushion and a garment. Wine, beer, porter, and distilled spirits are never needed by young persons in health; but the aged are frequently benefited by them, if taken in small quantities. They are chiefly composed of oxygen, hydrogen and carbon, and are properly ranked with

the supporters of combustion. They are likewise stimulant, and add to the comfort of the old by quickening their circulation. Like tea and coffee, they diminish the waste of the body, and thereby lessen the demand for food.

The smallest amount of aliment upon which a healthy adult person ever lived for any length of time, was twelve ounces a day. Upon this small daily allowance, Lewis Cornaro, a noble Venetian, subsisted in perfect health, during the protracted period of fifty-eight years. This he was able to do only by adding daily to his food about twelve ounces of light wines. I shall have occasion to refer to this case again.

Cost of Food.

ONE other consideration must ever influence the great majority of men in selecting their food. I mean its cost. It is a matter of great importance to the poor, to know what kinds of food they can subsist upon with least expense. Sometimes provisions are so high that persons in poor circumstances greatly need advice in this matter. Let me endeavor to furnish some information which shall be of service to the reader.

Milk is supplied by nature to be our first food, and is a good type of all alimentary substances. It contains *curd*, which has nitrogen, and is equivalent to albumen and fibrin, and represents the *blood-formers*. It has butter and sugar. These represent the *heat-formers*. It has salts, which contain potash, soda, phosphorus, etc. Fig. 64 is a microscopic view of good milk; Fig. 65, of poor milk; and Fig. 66, of milk adulterated with calf's brains.

Food will be valuable in proportion as it combines, in due proportion, the articles contained in the four groups, represented by *albumen*, *fat*, *sugar*, and *salts*.

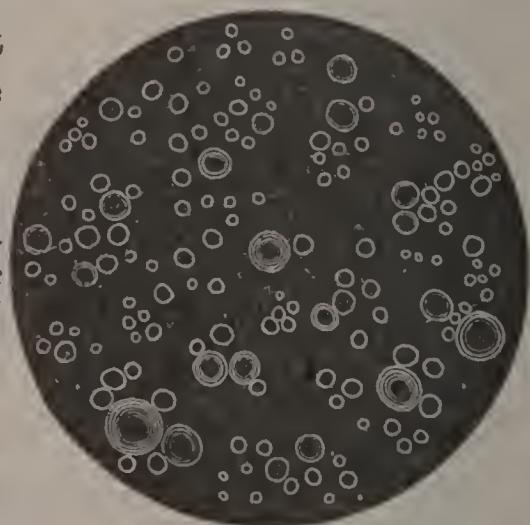


FIG. 64.

Albuminous Group.—Albumen, fibrin, casein, and gluten, all enter into the substance of animal and vegetable bodies, and are all composed of the same elements, namely, 48 parts carbon; 36 of hydrogen; 14 of oxygen; and 6 of nitrogen. In containing nitrogen they all differ from the other three groups. Albumen being a good type of them, they are called albuminous compounds. Albumen forms a large portion of the serum, or colorless part of the blood. It is the leading principle in alimentation. It is worked up into the tissues of our bodies. It forms our muscles, our membranes, a portion of our nerves, etc. It is the bricks of which the house we live in is made. All the articles, therefore, which are chemically constituted like it, may well be termed albuminous.

These bodies, consisting of the four organic elements named above, have been called *quaternary compounds*. Besides these elements, they have a minute portion of sulphur and phosphorus. They are also called *protein* or *proteinaceous compounds*.

Albumen is a very unstable compound,—tending strongly to decomposition. This is owing to the complexity of its composition,

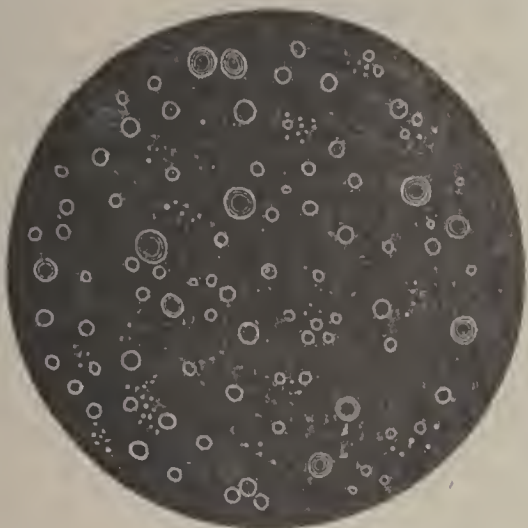


FIG. 65.

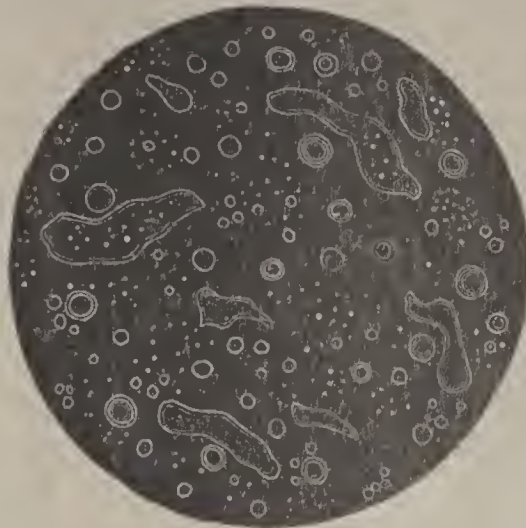


FIG. 66.

and to its union with the fickle element, nitrogen, which forms chemical compacts reluctantly, and breaks them without remorse. Substances which coagulate or fix albumen in an insoluble compound, or preserve the tissues of the body, which are made from it, from decomposition or putrefaction, are called *antiseptics*.

Fatty Group.—The next group, represented by fat, performs very important offices in the system,—the most important of which is a union with albumen in the formation of cells. All animal and vegetable life begins with the cell,—the tiny cup, with which nature dips all the streams of life out of the great fountain of inorganic matter. No cell is formed without a minute particle of oil. The portion not used in forming cells, is either burned as fuel to keep us warm, by uniting with oxygen, or it is stored away in the cellular tissues, adding to the bulk of the person. If, then, the very beginnings of life are dependent upon fat, it is of great importance as an article of diet. So necessary is it in the economy of life, that when not taken in the food, it is formed out of albumen in the processes of assimilation.

The Starch and Sugar Group, composed of several kinds of sugar, gum, etc., is never used in forming the tissues, but they perform important offices in the changes going on within the human organism. Thus, sugar of milk is decomposed, and forms lactic acid, so called from being found in sour milk. This acid plays a very important part in the process of nutrition.

Pure starch is a snow-white powder, having a glistening aspect. It is composed of grains from $\frac{1}{300}$ to $\frac{1}{3000}$ of an inch in diameter in the different grains; being largest in the potato and smallest in wheat. When examined with the microscope, they appear as in Fig. 63.

The Salts Group are sufficiently spoken of in another place.

A wise philosopher in ancient time said, “I do not live to eat and drink; I eat and drink to live.” If we intend to eat to live, we must combine, in our food, the four groups above explained; and if we would live at as small expense as possible, we must take those articles which are low in price and rich in nutritive matter. The following table will help the reader make his selections:—

Table of the relative value of articles of food arranged according to their proportions of nutrient matter in each of the four groups of elements concerned in vital changes.

In 100 pounds of	Water.	Husk or woody fibre.	1st Group. Albuminous substances.	2d Group. Fats.	3d Group. Starch and Sugar.	4th Group. Salts.
GRAINS:						
Wheat	15	15	10 to 19	2 to 4	55	2
Barley	15	15	12 to 15	2 to 3	60	3
Oats	16	20	14 to 19	5 to 7	60	4
Rye	12	10 to 20	10 to 15	3 to 4	60	2
Indian Corn	14	6	11	8.1	74	1½
Buckwheat	15	25	8	0.4	50	4
Rice	13	3	7	0.7	79	0½
POD PLANTS:						
Beans	14	8 to 11	24 to 28	2 to 3	40	3
Peas	14	9	24	2.1	50	3
ROOTS:						
Potato	75	4	2.1	0.3	18	¾ to 1½
Turnip	88	2	1.5	0.3	9	½ to 4-5
Carrot	85	3	1.5	0.4	10	1½ to 2
Beet (mangold wurzel)	85	2	2		11	¾ to 1
Long red	85	3.03	0.48		10.36	1¼
Short red	85	3.31	0.26		12.46	.75
Sugar beet	85	2		0.35	13	
Parsnip	80	1.5	2.5		16	½
LEAF:						
Cabbage			30 to 35			
MEAL:						
Wheat flour	15		10.8	2	70.5	
Ryemeal	15	4.63	8	2	73	2
Barleymeal	15		6.3	2.4	74	2
Oatmeal	15		12.6	5.6	64	3
Wheat bran	13.1	55	19.3	4.7	.6	7.3

The following tables have an admirably practical bearing upon economy in food:—

100 lbs.	Muscle- forming Elements, in lbs.	Fat-forming Elements, in lbs.	Relative Propor- tion of each, in lbs.	Husky, or Woody fibre, in lbs.
Barley	14	64	1 to 4½	15
Beans	26	42	1 to 1¾	10
Beets	2	12	1 to 6	(?)
Buckwheat	8	54	1 to 6¾	25
Carrots	1½	10	1 to 6¾	3
Corn	12	77	1 to 6½	6
Oats	17	66	1 to 4	20
Peas	24	52	1 to 2¼	8
Potatoes	2	19	1 to 9½	4
Turnips (field)	1½	9	1 to 6	2
Do. (Swedish)	2½	12	1 to 5½	2
Wheat Flour	11	79	1 to 7	
Wheat Bran	18	6	1 to ⅓	55
Cheese (whole milk)	28.4	51.1	1 to 1¾	
Cheese (skim-milk)	49.8	6.3	1 to ⅛	

Articles.	Cost.	Muscle-producing Elements.	Cost of Muscle-pro- ducing Elements.
Barley	\$1.00 per bu.	8.4 lbs.	12c. per lb.
Beans	1.80 "	16.6 "	11c. "
Corn	0.50 "	6.7 "	7½c. "
Oats	0.35 "	5.2 "	7c. "
Peas	1.00 "	14.3 "	7c. "
Potatoes	0.85 "	1.6 "	53c. "
Turnips	0.50 "	1.2 "	41c. "
Flour (fine)	5.00 per bbl.	22.0 "	23c. "
Flour (unbolted)	4.50 "	24.8 "	18c. "

These tables will well repay study, for their practical use will save many dollars to the poor. Let it be remembered that producing muscle is the same thing as producing strength, or *labor-power*. Bearing this in mind, the following table will be very interesting:—

One pound of labor-power from				Potatoes costs	53c. per lb.
"	"	"	"	"	Fine Flour, 23c. "
"	"	"	"	"	Unbolted do., 18c. "
"	"	"	"	"	Turnips, 41c. "
"	"	"	"	"	Barley, 12c. "
"	"	"	"	"	Corn, 7½c. "
"	"	"	"	"	Beans, 11c. "
"	"	"	"	"	Peas, 7c. "
"	"	"	"	"	Oats, 7c. "

Meats are omitted in the table. So far as their nutritive qualities are concerned, it is of little consequence which are taken. Some are more digestible than others, and this consideration should influence those with weak stomachs in selecting. Every person, of course, knows their relative cheapness.

Among the vegetables given in the table, there is a wider range for choice. Let us consider them in course.

Wheat.—In this, the four groups are represented in excellent proportion. When not deprived of the bran, it is perhaps the very best supporter of animal life. So high have been the regards of men for it, and so generously have they awarded to it their acknowledgments, that its product, bread, has been everywhere called “the staff of life.” The settlement and cultivation of the immense prairies of the West have within recent years so increased the production of wheat, that its cost is now less than half what it was fifty years ago, and it is indeed within the means of all in America.

Barley.—This has the four groups represented in nearly the same proportions as wheat. It is, therefore, nearly as valuable an alimentary grain. Unfortunately it is not so toothsome as wheat, and can never be so popular an article of diet. The Scotch, however, feed upon it with apparent relish, and doubtless think it strange that foreign palates are not better pleased with it.

Oats.—This grain, strange to say, has more albuminous, or nutritive matter, more fat, more starch, and more salts than wheat. In uniting a large quantity of the four alimentary groups, it surpasses

every other vegetable substance. In albumen, it is not quite as rich as peas and beans, and in starch it falls a trifle below fine wheat flour; but in fat it is exceeded only by Indian corn. This grain is likewise consumed largely by the Scotch,—a people whose claims to shrewd common sense are well supported by, as their hardy constitutions vindicate, the choice. This grain might well be permitted to take the place of rice. It affords several times as much nutriment, while it costs only about one-fifth as much. There is good reason why the horse should thrive upon oats. Most stable-keepers think their horses will do more work upon corn-meal, but this must be a mistake. In using oats for horse-feeding, a large portion of the nutriment is lost by not *grinding* them.

Rye.— This is also a grain of considerable nutritive value. It is much cheaper than wheat; and rye meal has long been a standard article of diet in New England, — particularly in connection with Indian meal, as “brown bread.” It is useful for relieving costiveness, in the form of “hasty-pudding,” with molasses.

Indian Corn.— This staple article of American produce needs no praise from me. It is comparatively cheap, nutritive, and wholesome. It abounds in fat and starch, and has a fair amount of albumen, though not as much as the oat, the barley, or the wheat. In salts, it is rather deficient. Indian corn is strictly an American plant, and is perhaps the most popular grain in the country. It has emphatically a national reputation, and is perhaps worked up into more savory dishes than any other. At the South it is an institution. It is there made into hoe-cake, corn-cake, batter-cakes, batter-bread, muffins, corn-pone, etc. At the North, we have johnny-cake, Indian and pumpkin-cake, baked Indian pudding, boiled Indian pudding, beside the well-known rye and Indian bread, and other preparations. Give an ingenious Southern or Northern housewife a few simple adjuncts, such as lard, milk, sugar, eggs, cream of tartar, and soda, and she will make a pretty respectable larder from this single grain. If molasses be substituted for sugar, and a little stewed pumpkin be thrown in by way of garniture, we may have several preparations which are very nourishing as well as cheap.

Buckwheat.— Poor in nutritive matter, fat, starch, and sugar, but tolerably well supplied with salts. It will do very well for batter-cakes in winter. When brought smoking upon the table, and served with sugar or molasses and butter, these cakes are a luxury, in which the rich may indulge if they choose; but for the poor, the amount of nourishment they afford is too small for their cost.

Rice.— Much like buckwheat, except that it has more fat, sugar, and starch, and less salts. As an article of diet, it has had too high a reputation. Those who would live on small means cannot afford it. Boiled in plain water, it is excellent for a relaxed state of the bowels; and this about all the commendation to which it is entitled.

Beans.— The richest in nutritive matter of all vegetable substances, except cabbage and oats. They have more albumen than wheat, or corn, or barley, or oats; but in fat and starch they are lower in the scale. Add to them salt pork, and the highest of all nutrient compounds is obtained. During not less than four generations, pork and beans, as the principal diet, nourished an iron-sided race of men in New England. Bean-porridge was like honey upon the tongue of the founders of New England institutions. They ate it morning, noon, and night; and thanked God for it every time. And well they might thank Him; for, with Indian corn, it furnished them with a diet better adapted to their condition than any other.

Peas.— Not quite as rich as beans in albumen, but more rich in starch, is of about the same value on the whole. The Canadian French, in Lower Canada, feed on peas to about the same extent that the New Englanders did on beans. Pea-soup, as prepared by the best cooks among them, is a dish of great nutritive excellence; and, in my judgment, more palatable than bean-soup.

The Potato.— Three-quarters of this root is water, and it is poor in all the elements of nutrition. It is a palatable article, and most persons are much attached to it. As *bulk* is of some consequence in food, the potato is not without value. Men do not often live entirely upon potatoes,—not even in Ireland. Milk, butter-milk, and especially cabbage, are united with them.

Turnips, Carrots, Beets, Parsnips.— These are much alike,—being all poor in nutritive qualities. They serve to please the palate by furnishing a variety; but in our city markets they are expensive, and do not furnish an economical diet.

Cabbage.— It is interesting to observe how the instincts of men have in all ages led them to select those articles of diet which their circumstances have demanded. The poverty of the Irish has led them to subsist largely upon the potato,—a root which the soil of their country yields profusely. But as this root has but little nutritive matter, necessity required that it should be united with some other vegetable. The natural instinct selected the cabbage; and when chemical science came, at length, to pass judgment upon the correctness of this instinct, it turns out that the cabbage is the richest in albumen of any known vegetable. The cabbage, then, is the natural complement of the potato; and the Irish had the sagacity, without science, to bring the two together. It is said the Irish have a dish named “kohl-cannon,” consisting of boiled and mashed potatoes and cabbage, seasoned with pork fat, pepper, and salt, and that it is a truly savory dish. It certainly is a nourishing and a cheap one. The ambassador who was sent to tamper with the patriotism of a Roman who had dined on beans, was asked if he was silly enough to think gold and silver could bribe a man who was satisfied with so plain a

fare, and desired no other. We come to the conclusion then, that bean-porridge, pea-soup, suet-pudding sweetened with molasses, oat-meal, and barley-bread, with "kohl-cannon" for those who can digest it, will furnish, for hard-working men, the most substantial diet, at the smallest possible expense. To render these dishes savory, and to make the table on which they are spread an inviting board, the deft housewife must employ her best skill in serving them. With the thousand "fixings, with which a New England matron knows how to garnish them (or would know how if they came within her culinary operations), they are well fitted to leave savory impressions upon tongues which would praise them to the end of life. I speak of these articles as furnishing a cheap diet for working men. The indolent, the sedentary, and the effeminate from various causes, could not digest them.

The Amount of Food Taken.

WE have already explained that this should be governed, in part, by the amount of exercise taken, by the condition of the health, by the state of the mind, by the climate, by the season, etc. It remains to add a few words in a general way, respecting the absolute amount required by an adult man.

It is plain enough that most men eat too much. We come very near, in this country, being a nation of gormands. A principal reason of our over-eating is, that we eat so fast. When the food is well and slowly masticated and swallowed, the gastric juice has time to mix with it; and at the proper moment the appetite ceases. But when our food is bolted rapidly, nature, finding her laws disregarded, and all her purposes frustrated, stands back, and lets us learn to stop, too late, alas! from a sense of fullness in a stretched and abused stomach.

It has already been stated that Lewis Cornaro lived fifty-eight years, namely, from the age of forty-two to one hundred, on twelve ounces of solid food a day, with about the same amount of light wines. At the age of eighty-four he wrote a book, in which he praises "divine temperance" in terms which are sometimes eloquent and often enthusiastic. Indeed it is very rare that a man at that age retains such clearness of intellect, and especially such freshness of feeling as he evinces in his book. Probably but few could live on the amount of food which he found sufficient. Yet it is said the distinguished John Wesley lived on sixteen ounces a day, which, as he took no wine, and had to derive the combusive materials for warming the body from the food, was quite as scanty a fare as that of Cornaro. Considering that he led a most extraordinarily active life, both of body and mind, being half his waking hours in the saddle and preaching almost daily, this is probably the most remarkable case of abstemiousness on record. Jonathan Edwards did not, I think, exceed the same amount of food, but he was not so active a man.

Putting aside such exceptional cases as these, we may say in round numbers, that a laboring man requires, to keep him in health, about two or two and a half pounds of solid food per day. For ministers, lawyers, doctors, authors, and merchants, one pound and a half is amply sufficient. The amount should be increased a little by a selection from some of the fuel-formers, if no fermented or alcoholic drinks be taken, and slightly diminished if they are used. The reason is that these drinks furnish fuel to be burned in breathing, which has to be drawn from the food when they are not employed. This furnishes no motive for *using* ardent spirits; for there is fuel enough to be had in the oils, starches, and sugars.

Dyspeptics. — It is said that dyspeptics eat more than persons in health; and, in many cases, the remark may be true. The appetite of a person suffering from this disease is almost always morbid, and the information it gives respecting the real wants of the system can seldom be trusted. If we allow a diseased stomach to dictate to us when and what and how much we shall eat and drink, our misery for life is a foregone question. A sick stomach is like a spoiled child, — it cries for what it should not have. If the dyspeptic will live, and enjoy any amount of peace and comfort, he must follow this simple rule: *To eat no more than can be digested, even though the amount be only an ounce a day.*

Animal and Vegetable Food.

It has generally been supposed that it was intended man should subsist on a mixed diet, consisting of both animal and vegetable substances. Within the last fifty years, however, a school of physiologists have appeared, who affirm that a vegetable diet is alone consistent with the laws of health. They declare that animal food is not adapted to man's organization, — that it unduly stimulates the blood, predisposes to fevers, consumptions, diarrhœas, choleras, apoplexy, and numerous other diseases, and of course shortens life. That such a school should have come into existence in this country, where animal food is more largely consumed than in any other part of the world, in proportion to the number of people, is not surprising. We do, undoubtedly, eat too much flesh. So enormous is the consumption, that notwithstanding the vast herds of cattle raised in all our agricultural states, and especially on the western plains, the demand keeps up with the supply so well that beef brings, on an average, about twenty cents per pound, — at least twice its full value as a blood-former.

Facts show that man may live upon flesh alone, upon vegetables alone, or upon flesh and vegetables combined. Is it *best* he should subsist upon vegetables only, or upon a mixed diet? A mere affirmation upon these points is of little consequence. To cite facts avails nothing. Men have a way of making their own affirmations, and of

looking at facts with eyes which sometimes see clearly enough on both sides of them, but totally ignore their existence.

Man's Structure Settles the Question.—To settle this matter, we must appeal to man's organization. His structure will tell us something we need not mistake. All the works of God show design. Everything he has made has a use, and is so contrived as to be adapted to that use. Lions, tigers, and other animals, for example, which feed on flesh alone, have a *short* second stomach, — it being only about three times the length of the animal's body. Animals which eat no flesh have a long second stomach, — that of the sheep being from thirty to thirty-five times the length of its body. A very remarkable difference of anatomical structure!

This is the meaning of the difference : Vegetable food has a great deal of waste matter in it. Woody fibre makes quite an item in its composition. This waste portion must be carefully separated from the nutritive part, and this must all be done in the second stomach. It takes time to do it. It must not be done in a hurry. The nutritive materials are destined to build a living structure, whose duration, like that of all other fabrics, will depend on the care with which the materials are selected and put together. The second stomach of the sheep is long, that there may be ample time for the mixed mass of chyme, when it passes out of the first stomach, to be changed to chyle, and then to be carefully separated into the two parts, the useful and the useless. Animal food is in its composition just like our own flesh, — there is little waste matter, and not much time is required for its separation ; hence, the second stomach of flesh-eating animals is short. Nearly the whole alimentary mass is quickly taken up by the lacteals, and there is no occasion for its travelling through a long second stomach.

Man's second stomach is in length midway between that of the flesh-eating and the vegetable-eating animals. If there be design in the works of the Creator, and if that design in the structure of the flesh and vegetable-consuming animals has now been correctly interpreted, it is plain that man is best nourished when he eats both kinds of food. The structure of his teeth and the motions of his jaws (see p. 30), confirm the same conclusion.

Americans Eat too Much Meat.—Yet, as I have said, there is no doubt the Americans eat too much meat. Sedentary persons require but very little. Less is wanted in summer than in winter,—in warm climates than in cold. People of wealth, whose circumstances impose no bodily hardships, need less than the poor, who are much exposed, and work hard ; whereas, they consume more. Those who do not labor with their hands, should never taste meat more than once a day.

It is painfully-amusing (if such a compound word is admissible) to hear a nervous female, whose sole exercise consists in going from

the parlor to the kitchen once or twice a day, and in making a brief shopping excursion once a week, complain that she cannot maintain her strength unless she eats freely twice a day of meat, and takes her free potations of strong coffee and wine.

A like opinion prevails generally among the feeble who are not obliged to labor. The child in its nurse's arms must daily, it is thought, suck a piece of chicken or beefsteak in order to thrive. Children thus fed have their blood constantly inflamed, and stand a poor chance when attacked by scarlet fever. The little master or miss who attends school complains of headache, and grows pale, feeble, and nervous. The books are blamed and thrown aside for what the dishes have done. The doctor is called in and assured that the dear child can eat nothing but a little fat broth, a custard, or cake; and if he prescribe a diet of plain bread and milk, he is believed to be heartless, and his prescription is not followed.

The Majority of Mankind Eat no Flesh.—All such misguided persons should be apprized that the great majority of mankind eat no flesh, because they cannot afford it. And they do not appear to suffer from its loss. Millions of Irish do not taste of flesh or fish from one month's end to another. Potatoes, oatmeal, and cabbage constitute their chief diet. Rice, poor as it is in nourishment, sustains, when combined with vegetable oil, millions of people in Asia. The Lazaroni of Naples, with active and finely moulded forms, live on bread and potatoes. These facts do not afford ground for altogether rejecting animal food, any more than Bayard Taylor's statement respecting whole tribes in Africa who live upon flesh furnishes a reason for excluding vegetable aliment. Man may live and enjoy health upon either, but his organization implies the use of both.

Proportions of Animal and Vegetable Food.

UPON this subject, it is impossible to fix any absolute rules. This is a point which must be determined by the temperament, the state of the health, the constitution, etc. Persons of a scrofulous habit should eat freely of animal food. But an inflamed stomach should never be tormented with flesh. Meat is stimulating, and will be almost sure to do mischief when there is heat and tenderness at the pit of the stomach. There are cases of inflammation of this organ, in which it may be necessary to live on bread and milk, with articles of the *starch group*, for months, and even for years.

On the other hand, when the system has run low from some exhausting disease, which excites no feverish action, it may be necessary at times to take a diet almost exclusively animal.

It is absurd to talk of the same diet as adapted to all persons, even when in health. As well might we expect one shoe to fit every foot, or one coat every back, or one color every eye, or one doctrine every mind.

Temperance the Main Thing. — After all, the great thing to be aimed at is temperance. It is not so necessary to reject one article and use another, as to partake of all with moderation, “I do not live to eat and drink; I eat and drink to live,” said a wise philosopher of the olden time. One would think the moderns have reversed this rule. A modern table has the appearance of being spread for the purpose of inducing men to eat all their stomachs will hold. A man who can dine daily, for half a dozen years, at one of our first-class hotels, and then find himself free of dyspepsia and all other diseases, must have a fine constitution, as well as most admirable control over his appetite. Mr. Addison said, “When I behold a full table set out in all its magnificence, I fancy I see gout, cholic, fevers, and lethargies lying in ambuscade among the dishes”; to which he adds, with much truth, in another place, “Abstinence starves a growing distemper.”

Good Results of Temperance. — A temperate diet has always been attended with excellent results, and always will be. There are times of great anxiety, when abstinence should be pushed to the extreme verge of endurance. During the siege of Gibraltar, Lord Heathfield, its gallant defender, lived eight days on four ounces of rice per day. Dr. Franklin, when a journeyman printer, lived two weeks on bread and water, at the rate of ten pounds of bread a week, and was stout and hearty. Dr. Jackson, an eminent physician in the British army, says, “I have wandered a good deal about the world, and never followed any prescribed rule in anything; my health has been tried in all ways; and, by the aid of *temperance* and hard work, I have worn out two armies, in two wars, and probably could wear out another before my period of old age arrives.”

Lord Bacon was right in the opinion that intemperance of some kind or other destroys the bulk of mankind, and that life may be sustained by a very scanty portion of nourishment. Cornaro, whom I have before mentioned as having lived fifty-eight years on twelve ounces of solid food a day, wrote as follows respecting himself in his eighty-fifth year: “I now enjoy a vigorous state of body and of mind. I mount my horse from the level ground; I climp steep ascents with ease; and have written a comedy full of innocent mirth and raillery. When I return home, either from private business or from the senate, I have eleven grand-children, with whose education, amusement and songs I am greatly delighted; and I frequently sing with them, for my voice is clearer and stronger now than ever it was in my youth. In short, I am in all respects happy, and quite a stranger to the doleful, morose, dying life of lame, deaf and blind old age, worn out with intemperance.” Howard, the philanthropist, fasted one day in the week; and Napoleon, when he felt his system unstrung, suspended his meals, and took exercise on horse-back.

Nothing can be plainer than the duty of fasting, when the stomach, having been overworked, is disinclined to receive food.

Brutes invariably follow this suggestion of nature; they never eat when sick, — probably because they have no silly nurses to coax them to swallow stimulating aliments. The habit of putting high-seasoned food into the stomach when it is inflamed and feverish is about as wise as directing streams of blue, violet, or red light into the eye when it is red and swollen with inflammation.

Tea and Coffee.

It is proper, before closing this chapter upon diet, that something should be said respecting the beverages of tea and coffee.

Some years ago, a meeting was held by the leading physicians of a city in the old world, in which the merits of tea and coffee were discussed. In this discussion each man first stated his experience in the use of these articles, and then constructed his argument according to that experience. The amount of what the reader could learn from the discussion was that Dr. A. had used tea all his life, and been benefited by it, while coffee had uniformly injured him; and that he thought tea should be used, while coffee should be rejected; that Dr. B. had taken coffee at breakfast, and found it an excellent support to the stomach and nervous system, while tea had disturbed his digestion and his mind; and that the former was a beverage of excellent qualities, while the latter was detestable; that Dr. C. had always drank both tea and coffee, and recommended them to everybody; and that Dr. D. had himself never been able to indulge either tea or coffee, and would have them both expelled from every household.

The discussion was not creditable to the learned and really able men who participated in it. The arguments were all based upon the miserably narrow basis of single individual experiences. They were no more valid than that of the man who should hold up a shoe, declaring it fitted his foot the best of any he ever had, and recommending all men to have their shoes made upon the same last.

The truth is, there is but one thing which can be affirmed universally of the effect of tea and coffee. They both, when taken, tend to prevent waste in the body, and, consequently, less food is required when they are used. This may be affirmed of them in their applicability to all persons, but nothing further. The truth is, some can drink tea but not coffee, and some coffee but not tea; some can use both, and some neither. Every man's susceptibility to the effects of these beverages is his own, as much as his susceptibility to the effects of light, or heat, or atmospheric changes; and these effects, each person must learn from experience. Coffee often produces, and generally aggravates, a bilious habit, — an effect which cannot, I believe, be traced to the use of tea. I have no doubt but that many cases of confirmed dyspepsia are traceable to the use of coffee alone.

Water.

THERE is one universal beverage; it is water. All men are fond of it. In sickness and in health, in joy and sorrow, in summer and winter, in cold climates and in hot, man loves and drinks water. The stomach, abused and made sick by stimulating food and drinks, and repelling everything else, still gratefully opens itself to water. Wherever man exists, therefore, or wherever he should exist, water is found, either in the form of springs, or running brooks, or rivers, or ponds, or lakes; and even where it is not found in some of these forms, it is periodically dropped down from the clouds. As there is no element in nature more necessary for man's existence than water, so there is none more universally diffused.

Pure Water Essential to Health.— But water varies very materially, both in its physical qualities, and in its adaptation to its purposes. Pure water is as essential to health as pure air. When either of these fluids is rendered impure by mixture with foreign matters, disease will be a frequent result. The ancients must have been influenced by this fact, or they would not have incurred such heavy expenses in procuring pure water from great distances. The strong aqueducts through which, for many miles, large streams of water are even at this day poured into Rome, attest the freeness of the expenditures she made for this purpose in the day of her greatest renown. We may pity the ancient Romans for being governed in their military operations by the opinions of augurs and soothsayers, and certainly these things were silly enough; but in other things, at first view equally superstitious, they showed practical wisdom. Vetruius reports that in selecting the sites of their cities, they inspected the livers and spleens of animals to learn the salubrity of the waters and the alimentary productions of the region. The size and condition of these organs do in fact indicate the nature of the pasturage and the qualities of the water with which animals are supplied. No people can enjoy good health when subjected to the double influence of bad water and impure air.

Division of Water.— The simplest division of water is into two kinds, soft and hard. Rain, river, pond, and snow water is soft: well and spring water is generally hard. Soft water contains but little impurities, and when used for washing, forms a good lather with soap. Hard water contains at least one of the salts of lime, often more; mixed with soap, it curdles and turns white. The reason of this is, that the oily acids of the soap unite with the lime, and form a compound which the water will not dissolve. Such water is not suitable for domestic purposes.

Chemical Nature of Water.— Water contains, reckoning the elements of which it is composed in volumes, two volumes of hydrogen, and one volume of oxygen. These two gases, the unlearned reader

will please remember, are highly subtle bodies, *not visible to the eye*, and yet, when chemically united, they form a liquid which covers two-thirds the entire surface of the globe, — floating upon its bosom the navies and merchant ships of all nations, and by its unmeasured depths and vast breadths and sublime movements, fills the thoughtful mind with conceptions of creative Power, which words never attempt to express. Should the two gases which compose this vast body of water cease to love each other, and fall asunder, the first lighted taper would set the world on fire, and not a living being upon its surface could escape destruction.

Impurities in Water.—It is not surprising that a fluid with as great a solvent power as water, should often dissolve and hold in solution a great many impurities. In passing along through the earth, before it comes up in springs and wells, it is filtered through various mineral earths, and becomes contaminated accordingly. In running through beds of limestone, it takes up a little carbonate of lime. Salt-beds impart to it common salt (muriate of soda), while sulphur and other ores tinge it with salts of various kinds.

Water-Supply.—At the present time all large cities and most of the towns in this country are supplied with water for domestic purposes, either from ponds or lakes, or from artesian wells, of greater or less purity, but in almost all cases superior to the common well-water, so liable to contamination by cesspools and sewage. The result is that the health of the people has been materially improved, and fevers, particularly those of a typhoid type, have diminished both in prevalence and fatality. The decaying vegetable and animal matter, which formerly was washed into the soil, and percolated into and poisoned the wells, is now washed away by copious supplies of pure, fresh water.

Lead Pipes.—In cities, water is usually conveyed through the dwellings in leaden pipes, — a practice fraught with a danger, to avoid which various expedients have been devised. That lead does often become oxidized and impart its poisonous properties to water when long in contact with it, is a well-known fact. Let a number of persons drink every morning from the the first water drawn from the pipes, and a portion of them will be attacked with some form of lead disease. The pipes should be emptied every morning before using the water for domestic purposes, and then there is little danger. Tinned pipes have been found to be almost entirely free from danger of lead-poisoning.

Physical and Other Properties of Water.—Good water is without smell, is perfectly clear, and in the mouth has a soft and lively feel. When poured from one vessel to another, it should give out air-bubbles. Boiled and distilled waters have a vapid, flat taste. This is owing to their containing no carbonic acid gas or atmospheric

air,— these being driven off in the act of boiling and distilling. A hundred cubic inches of good river water contain about $2\frac{1}{4}$ of carbonic acid, and $1\frac{1}{4}$ of common air.

Carbonic acid is what gives to mineral, or soda water, its brisk, and even pungent taste. Without a portion of this acid and atmospheric air, water is perfectly insipid, and not fit to be used as a beverage. Hence, if it be boiled or distilled to clear it of earthy matters, we must expose a large surface of it to the air, and shake it, that it may re-absorb from the atmosphere what it has lost, and thus recover its taste.

Rain Water is the Result of Distillation on a large scale, and would be insipid, like other distilled water, only that, after being distilled off from the waters upon the surface of the earth, it recovers, while ascending as vapor, the carbonic acid and atmospheric air.

Fishes breathe air as well as land-animals, and hence, lakes upon the tops of high mountains, where but little oxygen can be absorbed into the water from the air, are not inhabited by the finny tribes.

The Saltness of the Ocean is simply the accumulation of the saline substances washed out of the bowels of the earth.

The water which for thousands of years has been distilling off as vapor from the surface of the ocean is nearly pure. Being carried by the winds to the continents, it falls as rain, sinks into the earth, is filtered through mineral substances, comes to the surfaces in springs, is collected into rivers, and, with all its freight of mineral salts, is borne back to the ocean. Everything that water can dissolve, and carry down from the continents, finds a great depository in the ocean; and as this has no outlet, the accumulation must go on without limit. Rivers which flow into the ocean contain from ten to fifty grains of salts to the gallon,—composed chiefly of common salt, sulphate and carbonate of lime, magnesia, soda, potash and iron; and these are the constituents of sea-water.

Cleansing of Impure Water.— Impure waters should be cleansed before being used for domestic purposes. Distillation is the most perfect method of purification. Filtration through sand is a good method. It removes all suspended vegetable or animal matter, and all living animals. Boiling likewise kills all animals, and throws to the bottom carbonate of lime. It is this which constitutes the crust which lines tea-kettles in all regions where limestone exists.

Settlers in a new country should make it a prime object to find good water. This is of great moment. Their own health and the health of their posterity is dependent upon it. Any soil, good or bad, is not worth half price, if it yield impure water.

Reasons for Prizing Water.— Finally, we ought all to prize water very highly, for it *composes nearly eight-tenths of our entire bodies*, including our flesh, blood, and other fluids. Nay, we owe to it the very

softness, delicacy, and smoothness of our persons. Our muscles, nerves, blood-vessels, glands, cartilages, etc., all play smoothly upon each other in consequence of water. Take all the water out of us, and we should be dry sticks indeed. All our comeliness would be gone. Nobody would or could love us. We should be walking reeds, shaken and sported with by every wind. Let us never forget how much we are indebted to water.

Exercise.

ANIMAL life is conditioned upon exercise. Without it health cannot exist, or life itself be continued for any great length of time.

Proper exercise communicates motion to every part susceptible of it. It expands the chest, contracts and relaxes the muscles, quickens the motion of the blood, moves afresh all the other fluids, and stirs to the centre of the whole frame. More easy and perfect digestion, the nutrition of every part, and the proper performance of all the secretions and excretions, are the results of such exercise.

A distinguished physician said: "I know not which is most necessary to the support of the human frame, food or motion." Some of the finest talents in the world are probably lost for the want of exercise; for without it the mind loses its keen perception and its bounding energy, its power of application and its general scope. If men of great talents would give attention to exercise, the world would reap a larger harvest from their written thoughts.

The arrangements of modern society have very much abridged the facilities for taking exercise; but if Trenck in his damp prison, with fetters of seventy pounds weight upon him, could preserve his health by leaping about like a lion, most persons could do as much with the fetters of modern *society* upon their limbs.

Must be Regular.—Exercise, to be of much service, must be regular, — not taken by fits and starts, — a good deal to-day and none to-morrow; but in reasonable measure every day. Occasional efforts, with intervening inactivity, only does mischief.

Must be Pleasurable.—It should be connected, too, if possible, with some pleasing occupation or pursuit. The movement of the limbs should carry us towards some place or end in which the mind feels an interest; exercise will then do us most good. Hence botanical pursuits, the cultivation of a garden, and the like, are often preferable to a solitary and aimless walk.

Must not be Excessive.—Exercise should never be carried so far as to produce great fatigue. Extremes are injurious; and too much exercise, especially by a sick or feeble person, may be as injurious as too little.

No clothing should be thrown off after exercise, nor should one cool off by sitting in a draft of air. Very serious consequences often follow this practice.

Not to be Taken After Meals.—It is not best to take exercise immediately after meals. The reasons for this caution have been explained. It is true many laboring men go at once to their work after eating, without apparent injury. Yet they are strong, and can endure what those who use their brains chiefly could not. And even they do not labor as easily and cheerfully immediately after dinner.

Active and Passive.—Exercise is properly divided into active and passive. Walking, running, leaping, dancing, gardening, various sports, etc., are active. While sailing, swinging, and riding in carriages are passive. Riding on horse-back is of a mixed nature,—being both active and passive.

A few remarks upon these several kinds of exercise will have a practical value to some of the readers of these pages.

Walking is one of the most gentle, easy, and generally one of the most useful of the active exercises. It is within the reach of all who have the use of their limbs, and is indulged at the expense only of a little shoe-leather. To make it agreeable, the face is only to be turned to some favorite locality, and the mind put in communion with the voices of nature.

To walk with the best advantage, the body should be kept upright, the shoulders thrown back, the breast projected a little forward, so as to give the lungs full play, and the air an opportunity to descend to the bottom of them. This attitude places all the organs of the body in the most natural position, and relieves them from all restraint. Walking then becomes a source of pleasure. The artist who bends over his pallet, and gets into a cramped position, is by this kind of walking relieved, and his body kept upright. Females, particularly of the wealthier class, are much more apt to neglect this species of exercise than males.

It is not so in England. There it is no uncommon thing for ladies of high rank to walk ten miles a day; and they do it in shoes of sufficient thickness to protect their feet from all dampness, and in clothes large enough to give their muscles full play. As a consequence, they enjoy excellent health, and in many cases even retain their freshness and beauty to old age.

A master of one of the vessels of our navy who spent some time, lately, in the British Channel, was several times invited to spend the evening at Lord Hardwick's, where he made the acquaintance of two daughters of his lordship, who, in the drawing-room, he thought the most accomplished ladies he ever saw. Yet those young women, on two occasions, in company with other friends, walked miles to visit his vessel, once on a rainy day, clad in thick, coarse cloth cloaks which no rain could penetrate, and caring as little for wet weather as a couple of ducks.

Good for the Studious.—For the studious, walking is a most capital exercise. It varies the scenes so constantly, and brings the mind

in contact with so many objects, that the monotony of in-door life is admirably broken. It was a maxim of Plato, that "he is truly a cripple, who, cultivating his mind alone, suffers his body to languish."

Good in Cold Weather.—Walking is valuable in cold weather, because it exposes one to the cold atmosphere, and hardens the person against frosty weather,—a consideration of great consequence in countries which are subject to extremes of cold.

Running and Leaping are forms of exercise which should be indulged with prudence even by the young and healthy. For the feeble and the aged, they are entirely inadmissible. Used cautiously, in a system of regular training, they may help raise the bodily powers to a high degree of agility and endurance. The North American Indian, who was bred to the chase, ran with surprising swiftness, and for endurance was scarcely excelled by his faithful dog. What training has done for the Indian, it may do for the white man, who may chance to inherit as good a constitution.

The Game of Base-Ball requires very active running, and for the young, it is an exceedingly healthful amusement. It fills the whole frame with a bounding spirit, and sets the currents of life running like swollen brooks after heavy rains.

Gymnastics.—The more active species of exercise have generally been included under the term gymnastics. Among the Greeks and Romans, feats of strength and endurance were supposed to confer honor. For this reason, and because war was a laborious calling, requiring bodily endurance and strength, their youth were trained in the most active exercises. Gymnastic games were with them at once the school of health and the military academy.

In England, during the middle ages, acts of Parliament and royal proclamations were employed to regulate and foster those manly sports and exercises, which fitted the people for the activity required on the field of battle.

Those preparations for brutal wars would be unsuited to the present state of the world; but the capacity for endurance which these trainings produced, could be most usefully employed in the laborious and scientific researches which modern advancement requires. Very few of our scientific men have sufficient hardness of frame to sustain them in their laborious studies.

The heart-diseases which prevail so extensively are the result, many of them, of violent exercise, taken, perhaps, from necessity, and proving injurious because not a matter of every-day practice. Violent exercise, more than any other kind, must be regular in order to be borne.

Needed by Young Women.—Gymnastic exercises and calisthenics are particularly needed by our young women, to give them something of the robustness of our mothers, a few generations back. For the

want of them, they are dwindling away, and becoming almost worthless for all the purposes for which they were made.

In view of this want of exercise the introduction of the bicycle offers an excellent means of development for ladies, and it is very gratifying to note its increasing use. It brings into play many of the muscles of the body, while affording an exhilarating enjoyment of fresh air and changing scenery. But caution must be used, not to overdo one's self. Short rides only should be taken at first, increasing the distance as the muscles become hardened.

Moderns Physically Inferior to the Ancients. Reason for it.—It is evident that the moderns are inferior in bodily strength to the ancient Greeks and Romans. Before the introduction of Christianity, men knew very little about the future, and therefore strove to make the most of the present. Hence, they took measures to ensure health and long life. It is true that a due regard to the welfare of the future need not, and should not, prevent a care for the present; but from various causes, to be referred to on a subsequent page, such has been the practice, to the manifest physical injury of the race.

Dancing, when hedged about with proper restrictions and limitations, has great advantages as a physical training for the young. There are very few forms of exercise which give so free a play to all the muscles, and at the same time so agreeably interest the mind. Begun in early life, and pursued systematically, dancing imparts a grace and ease of motion which nothing else can give. For this reason alone, it should be cultivated as an art.

Every man and woman is often placed in circumstances in life where the possession of an easy carriage of body, and an unembarrassed manner, would be prized above gold. One's personal influence in the world is greatly increased by an easy, graceful manner. We all know how a polite manner wins, while a rough and uncouth one repels us.

Warning against Excess.—While dancing has many things to recommend it, there are also several considerations which should warn us against using it to excess, particularly in the ball-rooms of fashionable life. So many muscles are called into play, the breathing is so much quickened, and the air breathed is often so impure, that the circulation of the blood is hastened almost to fever excitement. And when to this we add the use of wines and cordials, alternated with ices and iced drinks, and the exposure, on returning home from balls, to the chilly night air, under the insufficient protection of light clothing, we have drawbacks enough to abridge, if not to annihilate the benefits derived from this otherwise healthful and elegant exercise.

But then it will be said, and truly enough, that these are the abuses, not the uses of dancing. To these abuses, no parent should permit the health of a child to be exposed. In the parlor at home, with a few young friends gathered in to spend an evening; or, in a well-venti-

lated hall, under the instruction of a master of known character and refinement, dancing is of high utility, and much may be said in its favor. An amusement for which there is so general a fondness, one may say, passion, must be fitted to meet some want of the animal economy, and perhaps of man's higher nature.

Grace of motion gratifies our sense of the beautiful, and in its nature is allied to poetry. Turning away from the abuses of dancing, let the reader thankfully use it as one of the very best physical, social, and æsthetical educators of youth.

But if dancing is salutary, it is only when every limb and muscle is allowed to participate naturally and without restraint in the general motion. When performed in a dress so tight as to restrain all freedom, not only is every grace destroyed, but injury of a serious character may be the result.

The Cultivation of a Garden is also a species of exercise highly conducive to health. To the poor it should have a double attraction. It is not only a healthful exercise, but it yields, in its season, many wholesome vegetables, the price of which, when they have to be purchased, frequently puts them beyond their reach. It is pleasant to know that in many of our manufacturing towns the workmen own small pieces of ground which they cultivate as gardens,—deriving health both from the labor, and from the vegetables raised. This is one of the kinds of exercise which are more beneficial from having an end in view. The man who works in his garden derives pleasure from the improvement he is making upon his ground, and from the prospect of advantage to himself and family.

Other Active Exercises.—To the exercises already spoken of may be added those which are mostly taken indoors,—the dumb-bells, jumping the rope, battledore, etc. They may be resorted to when the weather is stormy, or when any other cause may prevent one from going into the open air. Nevertheless, as promoters of health, they are inferior to those exercises which take one out under the open sky. They are too mechanical in their nature, and have too little aim, to be allowed to take the place of the preceding.

Passive Exercises.

Sailing.—This, to many persons, is among the most pleasurable and exciting of the passive exercises. But the excitement arising from the motions of a boat, sometimes, in case of timid persons, degenerates into *fear*, which is injurious. Young gentlemen who manage the boat upon sailing excursions, should never put on too much sail in a brisk wind, and torment the ladies by exciting their fears, as their own amusement may be in this way purchased at the cost of others' health,—a result far enough from their thoughts or intentions, but not the less real.

Swinging.— The sick may sometimes indulge in this exercise, when capable of enduring no other. To swing gently has a soothing effect, and often allays nervous irritability in a way which nothing else can. It is like the lullaby motion of the cradle. It calms and soothes.

Nervous children and grown persons in feeble health are some times, by roguish boys, swung too high, and very much excited and alarmed. This is wrong. It may do great injury. Very few boys would do it if they knew the evil consequences. Boys and girls are generally kind-hearted; and though they may like to hector others, they will seldom knowingly *injure* them for their own amusement.

Carriage-Riding.— The advantages to be derived from this species of exercise are probably rated too high. For feeble persons, just recovering from illness, who cannot endure walking or riding on horse back, it is valuable, particularly if taken in an open carriage. But for those who have more strength, it is less desirable than many other exercises. True, it is generally an *agreeable* mode of locomotion, and for this reason, it is more serviceable than the small amount of exercise afforded by it would lead one to suppose.

Carriages are luxuries, and like all other luxuries, they are apt to bring on debility, and perhaps shorten life. A man is apt to order his carriage to the door at the time when increasing wealth enables him to retire from the active pursuits of life,—the very moment when he is most in need of some exertion to take the place of that to which he has been accustomed. Yet so it is, luxury comes to enfeeble, at the time when we need something to harden us.

Could rich men be persuaded to let their luxuries consist, in part, in doing good, and, like Howard, find pleasure in travelling on foot to visit those who are sick and in prison, they would be surprised to see how their happiness would be increased.

Close carriages are generally used by the wealthy. They at best contain but little air, which is breathed over and over, and becomes unfit for respiration. The windows of such carriages should always be open, except in rainy weather, when the latticed windows only should be used.

Riding in Sleighs furnishes an agreeable excitement, and may be indulged in to some extent with advantage. Yet it can be had only in cold weather, and persons who partake of its pleasures should be careful to wear clothing enough to protect themselves against the frost. This is the more necessary, as very little motion is communicated to their bodies by the sleigh.

Horseback Riding.— This form of exercise may fairly rank next to walking; in some states of the system it is preferable. It justly holds a high rank as an exercise for *consumptive persons*. Many a man, and woman too, has been benefited by it when suffering from lung disease. For those who have *hernia*, or falling of the bowels, it is not proper, as the most serious consequences may result from its use.

The Horse should be Owned.—A feeble man who rides on horseback, should, if possible, own his horse; for, becoming attached to him, as he generally does, he will be able to ride farther than upon an animal in which he feels less interest. A horse is a noble creature, and a man who loves him will sometimes acquire a passion, almost, for being upon his back, and witnessing his splendid performances.

Pleasurable Exercises most Beneficial.—Finally, those exercises are most beneficial, and can be longest endured, in which we feel the greatest interest. Place before even a feeble man some desirable object, and he will endure a great deal to reach it; or engage the mind of a very tired person in something which greatly interests it, and considerably more exertion will be easily borne. This is well illustrated by the story told by Miss Edgeworth of a certain father, who had taken a long walk with his little son, and found the boy apparently unable to walk further, some time before reaching home. "Here," said the shrewd-minded father, "ride on my gold-headed cane." Immediately the little fellow was astride the cane, which carried him as safely home as the freshest horse.

Mental Co-operation is of the highest importance in all exercise. Men who are paid by the job, work with far more spirit than those who are paid by the day. One would dig in the earth with very little spirit, if he had no motive for doing it; but if expected with every shovelful of earth to bring up gold-dust, he would not only work with a will, but would endure a great deal more labor. From these considerations we may infer that those farmers and manufacturers who pay their men the highest wages, make the most money on their work.

The best time for taking exercise is that in which it does us most good. For most persons the morning hours may be considered most favorable. But there are many who cannot take exercise in the early morning, without suffering from it through the whole day. Some are able to walk miles in the afternoon, who would be made sick by similar exertions immediately after rising.

Persons often injure friends who have this peculiarity of constitution by urging them out in the morning. They do it from good motives, but are, nevertheless, blameworthy for attempting to advise in matters which they do not understand.

Rest and Sleep.

OUR bodies are like clocks; they run down and are wound up once every twenty-four hours. Were they obliged to work on uninterruptedly, they would wear out in a few days. It is a merciful provision that periods of repose are allotted to us. Everything has its

proper place. Rest is not less a luxury after exercise, than exercise is after rest. They both confer happiness at the same time that they promote our well-being.

Sleeping Rooms.—The largest part of our rest is taken in sleep. Of course the kind of room in which we sleep is worthy of consideration. Hufeland says: "It must not be forgotten that we spend a considerable portion of our lives in the bed-chamber, and consequently that its healthiness or unhealthiness cannot fail to have a very important influence upon our physical well-being." It should at least be large. That is of prime importance, because, during the several hours that we are in bed, we need to breathe a great deal of air, and our health is injured when we are obliged to breathe it several times over. We should at least pay as much attention to the size, situation, temperature, and cleanliness of the room we occupy during the hours of repose, as to the parlors, or drawing-room, or any other apartment. And yet how different from this is the general practice of families. The smallest room in the house is commonly set apart for the bed and its nightly occupants.

The sleeping-room should have a good location, so as to be dry. It should be kept clean, and neither be too hot nor too cold. And, more important still, it should be well ventilated.

One bed, occupied by two persons, is as much as should ever be allowed in a single room; though, of course, two beds in a large room are no more than one in a small one. Both are objectionable.

Fire in Sleeping Rooms.—As to having fire in a sleeping room, that is a matter to be determined by the health of the occupant. Persons who have poor circulation, and are feeble, had better have a little fire in the bed-chamber in cold weather. For those in good health a cold room is preferable.

Open Windows in Sleeping Rooms.—In the hot weather of summer, it is better to keep the windows open to some extent, through the night, but not on opposite sides of the room so as to make a draft across the bed.

There is a difference of opinion as to the safety of this practice, but the experience of those who have used it prudently and perseveringly has generally sanctioned its employment. It is presumed that night-air is made to be breathed; and if we breathe it habitually, there is no good reason why it should be considered hurtful. At all events we have got to do one of three things, — either breathe it, or be poisoned by air which is breathed several times over, or use very large sleeping-rooms, and thus lay in a stock to last over night.

An Open Fireplace in a bed-chamber will do much towards its purification. It carries off foul air. But many persons board up this outlet as if bad air were a friend with whom they could not think of parting. At the same time they will carefully close all windows and doors, as if fresh air were an enemy not to be let in.

Beds.— It is a pleasant thought that while so many things which injure health are coming into fashion, some which have a like effect are going out. Among the injurious things which are silently withdrawing are feather-beds.

In earlier times, a bed made of eider-down was thought to be a great luxury, to be carefully preserved, and handed down from mother to daughter. Beds made of hen's feathers, and other coarser kinds, were thought to be only fit for children. With due deference to these earlier judgments, it must be said that feather beds, whether downy or coarse, are not even fit for children. They are composed of animal matter, and by a slow process of decay, are always, when stirred, sending up an exhalation which it is not healthful to breathe.

By their softness, too, they increase the general tendency to effeminacy. In warm weather they are too heating. To sink down into them, and lie nearly buried all night, is to insure a feeling of lassitude and debility in the morning. Only the strongest persons can endure it without being made conscious of the evil effects.

Beds must not be too Hard.— On the other hand, it is almost equally unwise to choose a bed of absolutely unyielding hardness. When very tired, we may rest even upon a board; but sleep will generally be more sound as well as refreshing, if the bed be somewhat yielding. The hair mattress is the very best bed yet used. It is healthful and easy. No person once accustomed to it will ever return to feathers. In summer, it is a luxury; in winter, it is sufficiently warm, though a little more covering is needed than with feathers.

Bedding.— In hot weather, linen sheets are preferable to cotton, and of course will be used by those who have ample means. But cotton ones are good enough, and in winter are decidedly the more desirable of the two. Cotton is best, too, for those who suffer with rheumatic affections. For external covering, comforts are objectionable, because they do not let the insensible perspiration pass off as freely as it should. They are light, however, and so are rose blankets, which have the additional good quality of being porous. We should sleep under as few clothes as possible, consistently with comfort.

Night-Dress.— The flannel, cotton, linen, or silk, worn next the skin through the day, should always be replaced, on retiring, by a suitable night-dress. The undershirt should be of the same material with that which is taken off, but thinner. If we wear flannel through the day, we need it quite as much at night.

Do not Cover the Face.— The practice of sleeping with the face entirely covered with the bed-clothes is very injurious. It compels one to breathe the air over several times.

Natural Position for Sleep.— The most natural position in which to sleep is upon the right side. This affords the easiest play to the

internal organs. It is best, however, to learn to sleep in different positions, and to change occasionally from side to side. Upon the back is not so easy a position. To lie in this way obstructs the circulation of the blood, by the pressure of the stomach, bowels, etc., upon the large blood-vessels which pass down and up in front of the backbone. *It is very tiresome and injurious to lie with the hands above the head.*

Amount of Sleep. — The average amount of sleep required by persons in health is from seven to eight hours. Occasionally we find persons who get along very well with six, or even five hours; while some, even in health, require nine. There is no absolute standard for all persons, in the amount of sleep, any more than in that of food. It depends on the temperament, the constitution, the amount of exercise, and the exhausting nature of the mental application.

The object of sleep is to repair the energies, the extent to which they are wasted, and the recuperative power possessed, will measure the amount required.

Late Suppers. — These are a bar to all sound and healthful sleep. The last meal should always be taken at least three hours before retiring and should be light. During sleep the stomach should have a chance to rest. It will work the better on the morrow. Some persons boast that they can sleep perfectly well after a heavy supper. Perhaps they can, but, as Franklin has wisely suggested, they may by and by “have a fit of apoplexy, and sleep till doomsday.” This will be sleeping *too well!*

Preparation for Sleep. — Dr. Franklin left behind the record of a wise life, as well as many excellent moral and philosophical directions. A good conscience was his prescription for quiet sleep and pleasant dreams, — a most excellent direction. Sleep is promoted, too, by withdrawing the mind, a short time before retiring, from all hard study and exciting themes of conversation, and turning it to calmer subjects of reflection, such as the moral attributes of God, and particularly his love and paternal character

Objects of Clothing.

THE clothes we wear are intended, or should be intended, to secure three objects, — *warmth in winter, coolness in summer, and health at all times.*

It has already been shown that our bodies are warmed by their own internal fires. In the lungs, in the skin, and indeed in all parts of the body, oxygen unites with carbon and other combustible matters, producing heat in the same way that it is produced in a grate where coal is burned; and as our temperature always needs to be kept to about 98° Fahrenheit, it follows that this combustion must always be going on.

Now, the atmosphere which surrounds us is always receiving into itself the heat which comes to the surface of our bodies, and thus robbing us of our warmth. In summer, the atmosphere, full of the rays of a burning sun, may impart heat, instead of taking it away; while in winter it takes more than it gives, and would cause us to perish with the cold, were it not for the protection afforded by our clothing.

Clothes, of course, have no power to manufacture or impart heat. They only retain, and keep in contact with our bodies, that which is generated within us. If we have on a single garment which is made tight at the bottom and top, so that no current can pass up or down, there will be a layer of air between it and the body, which, becoming immediately heated, and being retained there, helps keep us warm, or rather, prevents us from being cold. With every additional garment put over this, there is another layer of heated air, adding still more impenetrable guards against either the intrusion of cold, or the escape of internal heat.

Bad Conductors of Heat.—But, that our clothes may thus retain our warmth, and prevent its dispersion, they must be *bad conductors of heat*,—that is, they must not readily take up the heat and convey it away from the body. They must slowly absorb the caloric into their own substance, and then retain it tenaciously.

Linen, which is so universally popular in temperate climates, as an article to be worn next the skin, is unfortunately a good conductor of heat. It does not afford a warm garment. It conducts heat rapidly away from the body. Hence it always feels cool to the touch. It is really no colder in itself than other kinds of cloth, but it is solely the rapidity with which it conducts heat away from the body, that gives it the feeling of coldness. It has other qualities which compensate, in some measure, for this defect. The fibres of which it is composed are round and pliable, which makes linen cloth smooth and soft, and the sensations produced by it on the skin altogether agreeable. Fig. 67 represents a fibre of linen, as it appears under a microscope which magnifies it 155 times.

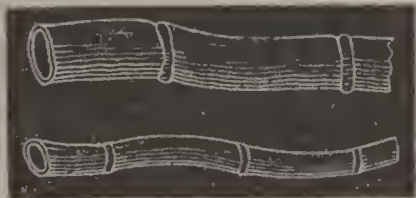


FIG. 67.

Cotton is warmer than linen, because it is a *worse conductor* of heat. The perfection to which its manufacture has been carried, makes it almost a rival of linen in softness and pliability. It does not absorb as much moisture as linen, and therefore better retains its powers as a non-conductor. But then the fibres of cotton are not round and smooth, like those of linen, but flat and spiral, with sharp edges. Fig. 68 represents two of its fibres, magnified 155 times. This renders cotton irritable to some very delicate skins. This is the reason why linen

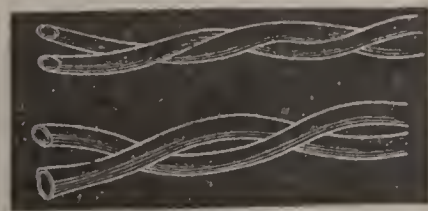


FIG. 68.

is better than cotton for binding up wounds, where there is tenderness of the surface.

Silk has a round fibre, like linen, which is even softer and smaller. It absorbs less moisture than cotton, and in its power of retaining warmth, it is superior to both the preceding. It forms the most desirable fabric for clothing that we have; but its cost makes it inaccessible to the great body of the people, except as a holiday dress for the ladies. Its culture in our country, if extensively established, would be a source of national wealth.

The Fibre of Wool is quite rough, almost scaly, and highly irritative to delicate skins. Fig. 69 shows fibres magnified 310 times. It is not possible for some persons to wear it next the skin. But where this cannot be done it may be worn outside the linen or cotton; and being a good *non-conductor*, it will in this way preserve the warmth of the body, without either irritating the skin, or disturbing its electricity.

Wool, in cold climates, is one of the very best materials of which clothes can be made. In New England, and, indeed, in all cold and temperate regions, it should be worn by delicate persons, in the form of thick or thin garments, all the year round. It does not readily absorb moisture, and is a dry, warm, and wholesome material for clothing.



FIG. 69.

Hair.— Though not precisely in the line of these remarks, *hair* may as well be introduced here. Wool is in fact hair. Every part of the skin, with the exception of that upon the soles of the feet, and the palms of the hands, is intended to produce hairs. On most parts of the body, they are short and fine, hardly rising above the surface. Upon the head and the face, they grow to considerable length.

Hair, like wool, is a bad conductor of heat; and, as growing upon the head and face, is doubtless intended for some useful purpose. That it was designed as a warm covering, can hardly be doubted. The beard, when permitted to grow, is a natural respirator, guarding the lungs against cold and dust. It has been noticed that blacksmiths who have allowed their beards to grow, had their mustache discolored by iron-dust, which lodged among the hairs, and very justly inferred that the dust must have found its way into the lungs, and done mischief, had it not been arrested by this natural respirator.

That the beard, when long, does ward off a great many colds and throat troubles, is too well known to be denied. It has required moral courage on the part of those who have broken away from the universal practice of shaving, for which they should be honored rather than ridiculed. For those who do not suffer from throat or lung complaints, especially if they are getting advanced in life, it may not be thought worth while to abandon the razor. Yet the change would



FIG. 70.

not be regretted. Fig. 70 is a human hair, magnified 250 times, showing its scaly surface.

The Color of our Clothing is a matter of some moment. The dark colors absorb the light, the sun's rays, and heat, much more than the lighter ones; and as those bodies which absorb heat well are likewise good radiators, the *dark colors have the highest radiating power*. White reflects heat and rays of light, and is a bad absorber and bad radiator. In summer it prevents the sun's rays from passing inward to heat the body, and in winter, interrupts the heat of the body in its passage out. In summer, it makes the coolest garment; in winter the warmest one. These facts can be very simply illustrated, by laying, side by side, upon the snow, when the sun shines, two pieces of cloth, the one black, the other white. Lifting them up, after a time, the snow will be found considerably *melted under the black cloth, but not under the white*.

It is now seen that the object of clothing is not to impart heat to the body, but to prevent its loss; that it is not to create it, but to furnish the occasion for increasing its degree. It appears further, that clothing protects the body against the evil effects of changes of temperature, and that white garments, by reflecting, instead of absorbing heat, guard it against the heat of summer.

Clothing should be Porous.—All articles used for garments should be *porous*, and permit the free passage of insensible perspiration. The skin receives oxygen through its pores, and gives back carbonic acid. It performs a sort of subordinate respiration. India-rubber garments, worn next to it, interrupt this, and must do mischief. Shoes made of this material soon cause the feet to become damp and cold. The dampness is occasioned by the insensible perspiration, which cannot escape through the rubber. Such shoes worn in the open air, should be immediately taken off on entering the house.

Thin Shoes.—The defective way in which American females protect their feet from cold and wet, is a sore evil; and he who persuades them to adopt a wiser fashion, and cover their feet with better guards against colds and consumption, will deserve the gratitude of the nation. We are in many things too fond of copying foreign fashions: but if our ladies would, in this matter, follow the excellent example of English women, they would live longer, and leave a hardier posterity behind them.

The shoes worn by our females, high and low, rich and poor, are not thick enough to walk with safety upon a painted floor, hardly upon a carpet in an unwarmed room; and yet they walk with them upon cold brick sidewalks, upon damp and frozen ground, and even in *mud*.

The result is, that they suffer from colds, sore throats, pleurisies, lung-fevers, suppressions, inflammations of the womb, and many other ailments, which in early life rob them of their freshness and beauty,

of their health and comfort, of their usefulness to their household and the world, and leave them helpless in the arms of their friends, with a patrimony of suffering for themselves while they live and a legacy of disease to hand down to their children. Would that they were wise in season! Some, to their honor be it said, have already adopted a safer course. It is hoped the evil will be gradually corrected.

Never attempt to mould the Form by Dress.—Parents commit a great error when they attempt to mould the forms of their children, particularly their daughters, by their dress. This cannot be done. It is the work of nature, and she wants no assistance in it. The great object of dress in childhood, as well as in adult life, is to promote health. *With this*, there is not much difficulty in preserving the symmetry; *without it*, deformity is almost a matter of course.

The fact cannot be too often repeated, nor too seriously urged upon parents, that while the foundation of all graceful and just proportion of the different parts of the body must be laid in infancy, it cannot be done by tight bands, and ligatures upon the chest, and loins, and legs, and arms. Upon all these points, the garments of children should set easy, leaving the muscles at liberty to assume the fine swell and development which nothing short of unconstrained exercise can give. Could infants tell all the horrors they suffer from the restraints put upon them by tight dresses, it would make many a mother's heart bleed.

In these brief remarks, the principles are given which should guide us in the selection of our clothing. The intelligent reader will be able very easily to fill up the outline.

Bathing and Cleanliness.

ARISTOTLE calls cleanliness one of the half virtues; and Addison, in the *Spectator*, recommends it as a mark of politeness, and as analogous to purity of mind. Both in the Jewish and Mohammedan law, it is enforced as a part of religious duty. Its requirement as a prerequisite to christian communion would be wiser than the demands sometimes made. A dirty Christian may perhaps be found, but not among those who mean to be intelligent.

The importance of keeping the skin clean is not generally appreciated. The motive for cleanliness is often a lower and meaner one than should be allowed to have place in the mind. Many persons would be mortified to have their hands, or face, or neck dirty, who do not wash their whole body once a year. That they may appear well in the eyes of others, is the only motive with such for keeping clean.

Offices of the Skin.—If we look a little at the offices of the skin, we shall better understand the need of keeping it clean.

The skin is not merely a covering to protect us from the weather. It is a living structure, curiously wrought, with a large extent of surface, and having important duties to perform in the animal economy. Its *structure* is more particularly explained under the head of "Anatomy" and "Skin Diseases." It has been already said, that it helps the lungs in breathing. It does many other things on which the health is dependent.

Number of Perspiratory Tubes.—The skin performs several kinds of secretion,—that is, it separates several things from the blood,—one of which is the perspiration, or sweat. The sweat is formed in small glands, situated just under the skin, and is brought to the surface in small ducts, or tubes, like the hose through which firemen throw water. These little tubes are spiral, as seen in cut 44, and run up through the two skins.

These spiral canals are very numerous, covering every part of the human frame,—there being about 2800 of them upon every square inch throughout the body; and as a man of ordinary size has about 2500 square inches of surface, the number of tubes in the skin of one man is *seven millions*.

The mouths of these tubes are called the *pores of the skin*. Each one of these tubes is extended just below the skin; and there, among the cells where the fat is deposited it, or rather the two branches into which it is divided, is wound into a coil, called the sudoriferous or sweat gland. These ducts are each about a quarter of an inch in length, which make an aggregate length of tubing in the human skin of about twenty-eight miles.

Insensible Perspiration.—Through each of these seven million of quarter-inch hose, there is poured out, day and night, as long as a man lives, a stream of sweat in the form of vapor. When this is thrown off very rapidly, as happens when active exercise is taken, it accumulates in drops, and is called sweat. Ordinarily it does not thus accumulate; it is then called insensible perspiration,—not being recognized by the senses.

This transpiration may be proved very beautifully by inserting the naked arm into a long glass jar, and closing up the space around it at the mouth so that no air can get in. The inside of the glass will soon be covered with a vapor, which will grow more and more dense until it is converted into drops. Boerhaave says: "If the piercing chill of winter could be introduced into a summer assembly, the insensible perspiration being suddenly condensed, would give to each person the appearance of a heathen deity, wrapped in his own separate cloud."

Now, this continual exudation of sweat through these millions of tubes is for a wise and necessary purpose. It is to take out of the blood and other fluids various salts, which would do mischief if allowed to remain longer, and particularly carbonic acid, which is

poisonous, — the same matters, in fact, which are thrown out by the lungs. The skin, in truth, is a kind of helper of the lungs; and a lady, by covering herself with garments which have no pores, and will neither admit air nor let off insensible perspiration, may be strangled almost as certainly as by putting a cord around her neck, and closing her windpipe. Almost twice as much fluid passes off through the skin as through the lungs.

Keep the Pores Open. — It is obvious from what has now been said, that the pores of the skin should be kept open to preserve health. When bathing is neglected, and the undergarments are not changed sufficiently often, the insensible perspiration accumulates and dries up upon the skin, mingling with the oily matter secreted by the oil-glands, and with the shreds of the scarf-skin, and forming a tenacious gluey matter, which closes up the pores. By this misfortune, that large quantity of worn-out matter which usually goes off with the fluid through the pores is retained to poison and embarrass the living current of blood, or seek an outlet through lungs or kidneys, which are already burdened with quite as much as they are able to do. How important, then, that these channels through which the body is purified should be kept open! that the skin should be kept healthy and in working order!

The Bath, the Great Purifier. — But this can only be done by daily washing. The bath is the great purifier of the human skin.

The antiquity of bathing is very great. The practice is supposed to reach back to the infancy of the race, or certainly to a very early period. The inhabitants of Middle Asia are said to have been the first to use the bath for the specific purposes of purification and health. Domestic baths are represented as having been used by Diomed and Ulysses. Andromache prepared warm water for Hector on his return from battle. Penelope banished sorrow by unguents and baths.

The Baths of the Medes, the Persians, and the Assyrians were much celebrated. Alexander, though familiar with the voluptuous baths of Greece and Macedon, was astonished at the magnificence of those of Darius.

Roman Baths. — As luxury and refinement advanced, the means of luxurious bathing were multiplied, until establishments were built by the Romans, the very remains of which excite wonder at this day. Among these are the *Thermæ* of Agrippa, of Nero, of Vespasian, of Titus, etc. One of the halls of the building constructed for baths by Diocletian, forms at this day the church of the Carthusians, one of the most magnificent temples in Rome.

Number and Character. — According to Pliny, baths were introduced into Rome about the time of Pompey; their first erection Dion attributes to Mæcenas. Agrippa increased their number to

one hundred and seventy; and within two hundred years they were multiplied to about eight hundred. These establishments were so vast that one writer compares them to provinces. They were paved either with crystal, or mosaic, or plaster, and were adorned by sculpture and painting to the very highest degree. They added not merely to the health and luxury of the people, but contributed to their culture in the highest departments of art and taste.

Names of Baths. — To the apartment of their dwelling in which they washed their bodies in warm or hot water, the Romans gave the name of *balneum*, or bath; to the public establishments, that of *balnea*, or baths. The apartment which held the vessels was called *vasarium*. In this were the three immense vessels which contained the cold, warm, and hot water. There were instruments of bone, ivory, and metal, for scraping the skin, with a groove in the edge, through which the impurities of the skin might run off.

On the north front of the thermæ was a reservoir of cold water large enough for swimming, called by Pliny the younger, *baptisterium*. In the centre was a spacious vestibule, and on each side, warm, cold, and vapor baths, with apartments for cooling, dressing, and refreshments. There was the *frigidarium*, a vaulted room, a cooling room midway between the warmer and the open air; the *tepidarium*, with a temperature midway between the above and the hot bath; and the *calidarium*, or the vapor bath.

Then there was the room where the body was rubbed over with a great number of ointments and essences of the most precious kinds; and another in which it was sprinkled over with powder; and also a room which held the clothes, in which the bathers undressed and dressed at pleasure.

All these apartments were double, the two wings being appropriated to the sexes.

Open to all. — These baths, thus numerous and magnificent, were open to all classes of the people, and contributed largely to the general health and physical endurance for which the Romans were conspicuous.

The Bath Neglected under the Christian System. — When Jesus of Nazareth came into the world, he found man's nature cultivated in a most defective way. The moral element had sunk down to the lowest place, while the physical had risen to the highest, — just the reverse of the true order of things. This Divine Teacher came, not to recommend a neglect of the body, but a new cure for the imperishable part. Mankind were for the first time systematically taught to forgive injuries. Prostrate liberty and degraded woman became the wards of Christianity.

Unfortunately, under the new order of things, the lower element of man, which had been exalted and worshipped, was cast down and abused. What the Pagan had pampered, the Christian persecuted.

The body, which had been bathed, and scrubbed, and anointed, and perfumed, was thenceforward, in consequence of the improper interpretation of certain texts, scourged, and fasted, and clothed in rags. Thousands believed, and thousands do to this day, that to torment the body is to please God. Under this feeling, the public and private baths were neglected, and to this day no Christian nation has fully appreciated the necessity of cleanliness, and of sanitary measures for the maintenance of the public health. To a considerable extent, the body is still under disabilities; still the subject of persecution; and where this is not the case, it is too often regarded only as a loose outside garment, to be thrown over the traveller to the celestial city, and is expected to be well soiled with mud and dust. The teachings of the Great Master will by and by cease to be perverted, and will be applied to raise up man's body, as they have raised his mental and moral nature, and will make a well-developed and harmonious being.

In the meantime, it is the duty and the privilege of the physician to urge a return, not to the magnificence of the ancient regimen for training the body, but to its real efficiency in a simpler form.

Cold Bathing.—Water applied to the skin at a temperature below 75° of Farenheit, is called a cold bath. If applied to a person with sufficient constitutional energy to bear it, it is a decided and very powerful tonic. By this is meant that it promotes the solidity, compactness, and strength of the body.

The first effect of the application of cold water to the skin, is the sudden contraction of all its vessels, and the retreat of the blood towards the internal organs. The nervous system, feeling the shock, causes the heart to contract with more energy, and throw the blood back with new force to the surface.

This rushing of the blood back to the skin, is called a reaction; and when it occurs with some energy, it is an evidence that the system is in a condition to be much benefited by the cold bath. When this does not take place, but the skin looks shrunken, and covered with "goose flesh," and a chilliness is felt for a longer or shorter time after bathing, then the inference should be, either that the water has been used too profusely, or that the bather has too little reactionary power for this form of the bath. The latter conclusion must not be accepted until cold water has been tried with all possible guards,—such as beginning with tepid water, and gradually lowering the temperature; bathing for a time, at least, in a warm room; beginning the practice in warm weather; and applying the water at first with a sponge out of which most of it has been pressed by the hand. With some or all of these precautions, most persons may learn to use the cold bath. It is always to be followed by brisk rubbing with a coarse towel or flesh-brush.

The Sponge Bath.—A wet sponge is the simplest, as well as the best mode of applying water to the surface of the body. With per-

sons who are feeble, a part only of the body should be exposed at a time, — which part, having been quickly sponged and wiped dry, should be covered, and another part exposed, and treated in a like manner. In this way, all parts of the body may successively be subjected to the bracing influence of water and friction, with little risk, even to the most delicate, of an injurious shock. The only furniture required for carrying out this simple plan of bathing, is a sponge, a basin, and a towel. There is no form of bathing so universally applicable as this, or so generally conducive to health.

The Shower Bath requires a brief notice. The shock to the nervous system produced by it is much greater than that from sponging. Beside the sudden application of coldness, there is a concussion of the skin by the fall of the water. This form of the bath is excellent for those who are strong and full of vitality, but is fraught with some danger for the feeble and delicate. This, however, depends on the judgment with which it is used. In the form of a delicate shower, and with tepid water, the frailest body might bear its shock.

The Warm Bath.— A temperate bath ranges from 75° to 85° ; a tepid bath, from 85° to 95° ; a warm bath, from 95° to 98° ; a hot bath from 98° to 105° . A warm bath is of the same temperature with the surface of the body. Of course it produces no shock. To those who are past the meridian of life, and have dry skins, and begin to be emaciated, the warm bath, for half an hour, twice a week, is eminently serviceable in retarding the advances of age.

It is a mistake to suppose the warm bath is enfeebling. It has a soothing and tranquillizing effect. It renders the pulse a little slower, and the breathing more even. If the bath be above 98° , it becomes a hot one, and the pulse is quickened.

The temperature of the warm bath, as of the cold, should be made to range up and down according to the vigor of the frame, and the circulation of the individual. The aged and the infirm, whose hands and feet are habitually cold, require it to be well up towards the point of blood heat. The pulse should not be made to beat faster by it, nor should sensations of heat or fullness be induced about the temples and face.

The Vapor Bath.— This differs from the warm bath in being applied to the interior as well as to the exterior of the body. The warmth is inhaled into the air-tubes at the same time that it envelops the external person. The first sensation of the vapor bath is oppression, and causes some difficulty of breathing; but this passes off as soon as the perspiration begins to flow. From the steam-chamber, the bather should step into a tepid bath, and after remaining a short time in this, wipe himself thoroughly with dry towels.

Cold Affusion immediately after either the warm or the vapor bath, is excellent. In Russia it is common, after the vapor bath, to pour

upon the head of the bather a bucket of warm water, then one of tepid, and lastly one of cold; and to finish with giving him a good towelling. It is even said that the natives leave the steam and the hot bath, and roll themselves in the snow.

No danger need be feared from cold affusion when the skin is red and excited by the warm bath, provided the nervous frame is not in a depressed condition. If the body is chilled, and the nerves prostrated by disease or fatigue, the application of cold water to the skin may do great mischief, and should in no case be hazarded. Cold water applied to a *hot* skin cannot do harm; to a *cold* skin, it can do nothing but harm. Hence, the cold bath may be used with advantage on rising in the morning, while the body is warm. Another good time is at ten or eleven o'clock in the forenoon, when the nervous power is advancing towards its height for the day.

Reaction Necessary.—As a means for promoting cleanliness, the importance of the bath can hardly be overstated. For the support and improvement of health, it is equally important. But for the promotion of the latter, one prerequisite is essential,—the reaction of the skin.

Various means are resorted to, to secure this. The Hindoos secure it by a kind of shampooing, thus described by a writer: “One of the attendants on the bath extends you upon a bench, sprinkles you with warm water, and presses the whole body in an admirable manner. He cracks the joints of the fingers, and of all the extremities. He then places you upon the stomach, pinches you over the kidneys, seizes you by the shoulders, and cracks the spine by agitating all the vertebræ, strikes some powerful blows over the fleshy and muscular parts, then rubs the body with a hair-glove until he perspires,” etc. “This process,” says the writer, “continues for three-quarters of an hour, after which a man scarcely knows himself; he feels like a new being.” Sir John Sinclair speaks thus of the luxury of the process: “If life be nothing but a brief succession of our ideas, the rapidity with which they now pass over the mind would induce one to believe that in the few short minutes he has spent in the bath, he has lived a number of years.”

The Coarse Towel, the horsehair glove, and the flesh-brush are the appliances commonly used for stimulating the skin, and causing reaction. For tender skins, the towel is sufficiently rough. With this the bather should rub himself, unless he is weak and the exertion produces palpitation. The muscular exertion necessary for this will help the reaction.

Restoration of the Bath desirable.—It is greatly to be wished that the bath might be restored to something like the importance it held among ancient nations. It is a luxury, a means of health, and a source of purity both of body and of mind; for the morals of any people will rise where the use of the bath is regular and habitual.

The attempt to cure all diseases by what is called the "water-cure," has a bit of fanaticism about it, which will cure itself in time. But that water, used judiciously in the form of baths, is a potent moral and physical renovator of the race, is not to be doubted; and this should commend it to all sensible people, even though it should sometimes be abused by excess, as all good things are.

A people with clean hands, and clean bodies, and clean health, will very naturally come to like clean streets and clean cities, and finally, *clean consciences*. A fondness for cleanliness in one form, almost necessarily runs into a like fondness for it in other forms, until the purifying desire pervades the whole nature, moral as well as physical.

Air and Ventilation.

WATER and air are fluids. Water covers two-thirds the surface of the globe, having a depth, in some places, of five miles or more. Air covers not merely the remaining third of the earth, but the water as well. It embraces the entire globe, pressing alike upon land and water, and having a depth of about *forty-five miles*. This is a sea of such magnitude, that the Atlantic or Pacific shrinks to a very small lake in the comparison.

Man has his residence, and walks about at the bottom of this ocean. He has no means of navigating it, and, therefore, never rises to its surface; but, with his natural eyes, and with telescopes, he discovers objects which lie millions and billions of miles beyond it, and even acquires much exact and useful information respecting them.

This vast ocean of air we call an *atmosphere*, from two Greek words signifying vapor, and a sphere,—it being an immense fluid-sphere, or globe.

Pressure of the Atmosphere.—This atmosphere presses upon man and upon every object on the surface of the earth, with a force equal to fifteen pounds to every square inch; and as a man of average size has a surface of about 2500 square inches, the air in which he lives, presses upon him with a weight of eighteen tons. This would of course crush every bone in his body, but for the fluids within him which establish an equilibrium, and leave him unoppressed.

The Philosophy of Breathing cannot be fully explained in the brief space allotted to this subject; it is enough to say, that, upon the attempt being made to draw in the breath, the muscles of the breast draw up the ribs, the diaphragm or midriff at the same time contracting,—the whole movement being such as to create a *vacuum* in the lungs. The air, pressing upon every part of the surface, as mentioned above, rushes in and fills the vacuum. The lungs being filled, the contraction of the muscles of the belly causes the diaphragm, which has sunk down towards a plane, to rise up into the form of an umbrella, and squeeze the air out of the lungs.

This is about all that need to be said of the method of getting the air into and out of the lungs. The whole process is under the control of that part of the nervous system called the *medulla oblongata*, or the top of the spinal cord.

Objects of Breathing.— There are at least three objects to be accomplished by breathing; the renewal of the blood and the taking of impurities out of it; the warming of the body; and the finishing up of the process of digestion, and the change of chyle into nutritive blood.

There is no good reason for attempting here to explain the last of these objects. To give any idea of the first two, it is necessary to furnish a very brief explanation of the circulation of the blood.

The heart is double. There are in fact two hearts, a right and a left, joined together. The right heart receives the blood from the veins, and forces it up into the lungs, whence it is brought back to the left heart, and by this is driven through the arteries into every part of the body. When received into the lungs, the blood is of a dark purple color, and is loaded with carbonic acid and some other impurities. It has also been deprived, during its circulation through the body, of most of its oxygen. The small, delicate vessels which convey this dark and impure blood through the lungs, pass directly over the air-cells; and at this moment the carbonic acid and water pass through the blood-vessels and air-cells, and are borne from the

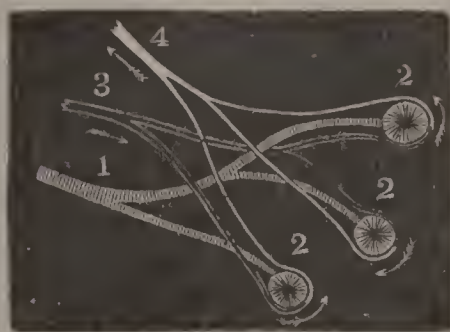


FIG. 71.

body on the outgoing breath; while the oxygen enters the blood through the walls of the same vessels; and this exchange, which takes place with every breath, alters the blood from a dark purple to a scarlet red. Fig. 71 shows at 1, a bronchial tube divided into three branches; 2, 2, 2, are air-cells; 3, branches of the pulmonary artery winding around the air-cells with the dark blood to be reddened.

That carbonic acid and water are borne out of the lungs with every breath, may be easily proved. If we breathe into lime-water, it will become white. This is owing to the carbonic acid in the breath uniting with the lime, and producing carbonate of lime. Then, if we breathe upon a piece of glass, it becomes wet, showing that there is watery vapor in the breath. That the blood receives oxygen from the air we breathe is proved by the fact that the ingoing breath has one-fourth more oxygen in it than the outgoing.

The lungs, then, take out of all the air we breathe, one-fourth of its oxygen. If we breathe it over a second, a third, and a fourth time, it not only has less oxygen each time, and is less useful for the purposes of respiration, but it becomes positively hurtful by reason of the poisonous carbonic acid which, at every outgoing breath, it carries with it from the lungs.

Effect of Sleeping in a Small Room.— Now, consider the effect of

sleeping in a small room, seven feet by nine, not furnished with the means of ventilation. A pair of lungs, of ordinary size, take in, at each breath, about a pint of air. Out of this air one-fourth of its oxygen is extracted; and when it is returned from the lungs, there comes along with it about eight or nine per cent of carbonic acid. As it is not safe to breathe air containing more than three or four per cent of this gas, the pint which the lungs take in and throw out at each breath is not only spoiled, but it spoils something more than another pint with which it mingles; and as the breath is drawn in and thrown out about eighteen times per minute, not less than four cubic feet of air is spoiled in that time by one pair of lungs. This is two hundred and forty feet an hour; and in eight hours, the usual time spent in the sleeping room, it amounts to one thousand nine hundred and twenty cubic feet. During the hours of sleep, therefore, one pair of lungs so *spoil* one thousand nine hundred and twenty cubic feet of air that it is positively dangerous to breathe it.

In a room seven feet by ten, and eight feet high, there are five hundred and sixty cubic feet of air, a little more than one-quarter the amount spoiled by one pair of lungs during sleeping hours. In a room of this size, there is not air enough to last one person three hours; and yet two persons often remain in such rooms eight or nine hours.

Why then do they not perish? Simply because no room is entirely air-tight. Fortunately, all our rooms are so made that some foul air will get out, and a little that is pure will find its way in. *Were it not so, no man who closed the door behind him, for the night, in a small bed-room, would ever see a return of day.*

Suppose fifty children are confined in an unventilated school-room, twenty feet by thirty, and ten feet high. These children will spoil about one hundred and fifty feet of air in one minute, or nine thousand feet per hour, or *twenty-seven thousand feet in three hours*,—a usual half-day's session. But the room holds only *six thousand cubic feet of air*,—*the whole of which these children would spoil in forty minutes.*

These simple facts show the absolute necessity of ventilation. Yet how poorly it is provided for in our sleeping rooms, our sitting rooms, our school houses, our churches, our court houses, our halls of legislation, and even in our anatomical and medical lecture-rooms!

In sick-rooms, ventilation should receive special attention.—Every disease is aggravated by the breathing of bad air. Yet it is common to close all the doors and windows of rooms where sick persons are confined, lest the patients should take cold. This is a bad practice. The sick should have plenty of fresh air. Their comfort is promoted by it, and their recovery hastened.

It is strange that human beings should be afraid of pure air. It is their friend and not their enemy. Impure air only should be shunned.

The supply of good air ample.— There is no necessity for breathing air which has lost a part of its oxygen, and acquired a portion of carbonic acid. The supply of good air is ample. An ocean of it forty-five miles deep, covering the whole globe, seems a pretty plain intimation that it is not to be sparingly used. When men retire within their dwellings, and attempt to shut out this great sea of air, they show about as much wisdom as would be exhibited by fishes which should build water-tight huts around themselves at the bottom of the ocean, and swim about continually in the unchanged water within. Fishes can only live in glass globes when the water is changed every day; and if the water be changed half a dozen times a day, they cannot be as healthy as when swimming in the great ocean.

Cultivating Trees.— In most of our cities there is almost a criminal neglect of the cultivation of trees; yet they add greatly to the health, and prolong the lives of the citizens.

The leaves of a tree are the lungs with which it breathes; but instead of extracting oxygen from the air, and giving back carbonic acid, like man, it takes only the poisonous carbonic acid, and gives back oxygen.

Were there no animals on the globe, the vegetables would consume all the carbonic acid, and die for want of breathing material; on the other hand, were there no trees or other vegetables, the animals would in time so far exhaust the oxygen as to perish for lack of it. The two together keep the air healthy for each.

The relation of plants and animals, in all that relates to their peculiar actions and effects, is a complete antagonism. Their movements are in contrary directions, and by hostile forces. Their opposing actions may be illustrated thus:—

THE VEGETABLE PRODUCES the non-nitrogenized substances, sugar, starch, and gum.

THE VEGETABLE DECOMPOSES carbonic acid, water, and ammoniacal salts.

THE VEGETABLE DISENGAGES oxygen.

THE VEGETABLE ABSORBS heat and electricity.

THE VEGETABLE IS A DE-OXIDIZER.

THE VEGETABLE IS STATIONARY.

THE ANIMAL CONSUMES the non-nitrogenized substances, sugar, starch, and gum.

THE ANIMAL PRODUCES carbonic acid, water, and ammoniacal salts.

THE ANIMAL ABSORBS oxygen.

THE ANIMAL PRODUCES HEAT and electricity.

THE ANIMAL IS AN OXIDIZER.

THE ANIMAL IS LOCOMOTIVE.

We learn from the facts of Geology that the time was in the history of our globe, when lunged animals could not breathe its atmosphere; it was too much loaded with carbonic acid. The trees then grew with a rapidity almost inconceivable, decomposing the poisonous gas, taking to themselves the carbon and setting the oxygen free, and lifting up their brawny arms to heaven in acts of thankfulness for the great feast.

At length the noxious gas was exhausted; and then, pale and sickly, they feebly held up their hands for help; and God sent numberless tribes of warm-blooded animals, full of life and energy, that

sported in the exhilarating air, and destroyed vast forests, thereby reproducing carbonic acid.

These simple facts should teach man the sanitary importance of trees and bushes; and wherever he has a rod, I had almost said a foot of ground to spare, a tree should be planted and carefully nursed. This is particularly necessary in large cities. Every narrow street in a city should be lined with trees. For their absence, thousands of men, women, and children have died sooner than they otherwise would. We want them stretching up their arms to all our windows to give us oxygen, and to take to themselves the carbonic acid we exhale.

Tight Dresses. — The health may be injured by not breathing air enough, as well as by inhaling that which is impure. It is therefore improper to compress the lungs by wearing tight dresses. If the ribs are held down by the dress, but little air can get into the lungs, and only a small amount of carbonic acid can be carried out. In this event, the health is injured in two ways: the blood is not vitalized by oxygen received, and it is poisoned by carbonic acid retained.

Tight lacing has in a measure gone out of fashion; yet too much of it for the best development of female health is yet retained. As a knowledge of physiology and the laws of life, and a better judgment of the true symmetry of the female form prevail, this barbarous custom will pass out of use, and the substantial health and real beauty of the American woman will together rise to a higher standard.

Fill the Lungs well. — Persons who take but little exercise are apt to acquire the habit of drawing the air very little into the lower part of the lungs. This should be counteracted by taking long and full inspirations for a short time, every day, while in the open air. This practice would get the lungs in the habit of opening to the air quite down to their base, and would make the breathing much more natural as well as effectual at all times. In the case of young persons, it would enlarge the capacity of the chest, and add to the brief years of life. Parents should see to it that their children spend from ten to twenty-five minutes every morning inflating their lungs with pure air.

Travelling.

It is true that many persons who dwell in one spot, and hardly move from it all their lives, live to old age. Yet change of location for a short time, or permanently, does promote health, and protract life. The mind tires of contemplating one set of objects for a great length of time; and in the absence of all stimulation, it sinks into apathy, and imparts no energy to the body. The physical frame, partaking of the ennui of the mind, droops. This is doubly true when one is suffering from illness.

Travelling is eminently fitted to draw the thoughts of the nervous and feeble from themselves, and to turn them with interest to outward objects. This is of great importance. It is better than stimulants and tonics.

The nervous system has great power over the health; and the pleasurable sensations, excited by visiting new places and scenes, and conveyed to the mind through the nerves, often awaken in the constitution energies which are essential to recovery.

Travelling places a man in entirely new circumstances. It surrounds him with novelties, every one of which makes a demand upon his attention. It breaks up his old trains of thought, which have been monotonous so long that they have grown oppressive. It causes the world to touch him at a thousand new points, and surprises him every day, perhaps every hour, with a view of the false relations he has sustained to it. It opens to him new depths in his own nature, and causes him to wonder that they never attracted his attention before. It opens to him one door after another, leading him into new apartments of knowledge; and as the world grows, he finds himself growing with it, until his whole nature dilates and beats with new life.

Means of Travelling Increased. — The last twenty-five years have greatly increased the facilities for travelling. Many of the sick may now seek health in distant lands, who, had their circumstances been similar twenty years ago, would have been compelled to pine at home. The railroads give an easy journey to thousands with the comforts of the parlor cars.

One thing more wanted. — But one thing is wanted to bring the means of travelling, for the sick, very nearly to perfection; it is a method of propelling carriages upon common roads, by some cheap power, which can never be exhausted, and which shall be easily managed by the traveller or his companion. This is a prominent want of the present hour; a giant discovery, which, at a single stride, would carry the world forward a hundred years, and which, we may hope, is in the womb of the near future. The power, it is believed, will be *electro-magnetism*. The mode of applying it, when discovered, will be simple, yet wonderful; and the results to the sick, beneficent beyond expression. The human mind cannot conceive the advantages which invalids would derive from such a mode of conveyance. Journeys might be long or short; might be made with any rate of speed which the strength permitted. The morning or afternoon stages might be discontinued when fatigue demanded, and resumed at pleasure. Over uninviting regions the traveller might glide swiftly, and linger where Nature spreads her feasts for the mind.

The best Seasons for Travelling are spring and autumn. Winter is too cold. A pleasurable excursion may sometimes be made in summer, but in general the season is too hot for comfort. In chang-

ing climate, food, water, etc., in the sultry season, there is danger of contracting very troublesome bowel complaints.

Means of Travelling for the Poor. — There is one painful thought connected with travelling as a means of health, — it cannot be enjoyed by the poor. When sick they generally have the careful attention of humane physicians; they receive from kind neighbors little delicacies of food and drink; they are watched with by night, and visited by day; but though suffering from the hard routine of a laborious life, and needing diversion and recreation more than all else, they cannot travel. They have not the means, and nobody thinks of supplying them for such a purpose.

This is a channel into which charity ought to pour some of its benevolent streams. In large cities there is a class of poor females who sit in their small rooms and ply the needle diligently through the whole year, and who run down every summer very near to confinement in bed. Two or three weeks, in the hot season, spent in travelling in the mountains and elsewhere, would bring back the color to the pale cheeks of such persons, and save them many years both from the grave and from the almshouse. No millionaire could make a better use of property than to set it apart, at his death, for the specific purpose of enabling the poor to travel. And if this suggestion should induce one rich man to consecrate his wealth to the Godlike work of bestowing health, happiness, and intelligence upon the poor, the great labor of preparing this book will not have been endured in vain.

Amusements.

THAT which engages the mind, and at the same time impresses it with pleasurable sensations, is a sufficiently accurate definition of amusement. Whatever occupies the thoughts and senses in an agreeable way, and employs them with some degree of intensity, comes under the same head.

This broad and general definition allows us to disregard our daily employments as amusements when they engage our deep attention and at the same time give us pleasure.

The term "amusements," however, in the more popular sense, is restricted to those sports, games, plays, exhibitions, entertainments, etc., which involve a *suspension* of our daily labors, and are properly called *diversions*.

When nature is tired and worn with those severe and exhausting toils by which we earn our bread, amusements turn us aside, *divert* us, engage other powers, and allow our tired faculties to rest. They are, therefore, of very great importance. Even the most trifling amusements may have the highest value. Their very nature and object imply that they will be valuable just in proportion as they divert and rest us. And just in proportion as they do these things, they give us health.

One other thing amusements do for us, which must not be forgotten; they preserve in us, in middle life, and even in old age, the warm simplicity of childhood. They keep us young in our dispositions and feelings. They keep us in harmony with nature, and consequently artless and truthful. They prevent the formalities of conventional life from stiffening us into cold and repulsive hypocrites.

Selection of Amusements. — Of course the same amusements are not adapted to all persons. The farmer who has worked his muscles all day, would not be benefited by a game of ball in the evening; yet there are few games more suitable for the student who has bent for many hours over his books. Care should always be taken, therefore, that amusements or sports do not bear upon those limbs or faculties which are wearied by work.

Amusements improve various faculties. — To one who has a taste for art, who is fond of works of genius and poetry, theatrical entertainments will always be agreeable, and a source of gratification and health. I know these exhibitions are objected to by many as immoral and hurtful, but more, I think, from habit and fashion, than upon any solid grounds of reason or religion. They certainly appeal to a high order of faculties in the human mind; and to those who are fitted to receive them, teach lessons of great moment. Even the lower exhibitions of comedy, though not particularly improving to the mind, are yet, from their power to provoke *laughter*, among the most powerful up-builders of health.

The Games of Whist, Euchre, etc., engage the minds of the players in a sort of mental contest, which is exciting, agreeable, and health-imparting. These games make us skilful in calculating chances, and judging how men ought to act under certain contingencies. They make us sharp to detect and turn aside the unseen forces, which tend to oppose and destroy our success in life.

I hardly need to say that money or rather property should never be staked upon a game of cards, or upon any other game. Gambling is one of the meanest as well as most destructive things in which men can engage. It raises the healthful excitement of these innocent amusements, — innocent when properly pursued, — into raging passions, which, when defeat comes, as come it will, sink into remorse and bitterness as terrible as the mind can conceive. I warn young men, as they would escape the pangs of a hell on earth, and the loss of character, happiness, and probably health for life, to avoid any such abuse of cards.

Chess, Chequers, etc., appeal likewise to the fondness of competition, which is common to all men. But they cultivate in us a little more of the mathematical element. As they require very close application of the mind, they are not suitable for persons of sedentary employments, or whose daily avocations require a constant use of the

mind. Such persons should choose lighter and more active amusements.

Lighter Amusements.—Beside these higher amusements, there are a great number of lighter and more childish ones, which should not be overlooked.

Some of these are merely physical, involving a trial of strength, fleetness, action, etc., as the games of ball, cricket, etc. Others are domestic in their nature, involving mirth, and various other of the lighter excitements, as blind-man's buff, puss in the corner, hole in the wall, fox and geese, hunt the slipper, hurly-burly, roll the platter, etc.

In fashionable American households, these simple domestic plays have in a great measure gone out of use,—being deemed vulgar, and below the dignity of ladies and gentlemen. I am sorry to say this; for the vulgarity, in my judgment, is in those who reject them, and not in the play.

The officer of our navy, whose visit to the mansion of Lord Hardwick I have spoken of on page 93, reports that on the evening of one of his visits, the play of blind-man's buff was engaged in by the whole party; and that his Lordship in attempting to make a short turn during the play fell upon his back, when one of his daughters, who was blinded, caught him by the heels, and being assisted by others, drew him feet-foremost half the length of the hall, amid the shouts of the whole party. This would have been deemed very vulgar by fashionable people in this country. But to me, who am no believer in any nobility which Lord Hardwick can receive from kings or queens, this simple narrative raised him at once to a peerage in nature's realm. Without doubt, he is one of nature's noblemen. A man in his station, and with his wealth and temptations to snobbery, who can preserve such simplicity of character, must have a warm as well as a noble heart in his breast.

Value of Domestic Amusements.—I remark here that, in all our amusements, we should, as far as possible, seek those of a domestic character. They are more simple and childlike in their nature, and preserve in us, even to old age, the freshness of feeling, and truthful simplicity, which spread so beautiful a greenness over the autumn of life.

Simple domestic amusements, too, are always gotten up on a cheap scale; they do not encourage costly extravagance, and can be indulged in by the poor as well as the rich.

But more, and better than all, they keep young men and old men, and young women and old women, at home, by making the domestic circle the centre of attraction. They draw the seekers of pleasure around the hearth-stone, instead of outward in the world. They incline young and old to look to the *family circle* as the centre of the most pure, because the most simple and natural, enjoyments. They teach us to look to *home* as the centre of life, and to all outside as only its appendages.

It has been said that *homes* are found only in England; that in other countries, life wanders, houseless and shelterless, abroad, seeking happiness, it knows not where, while in England it nestles warmly in the bosom of home. To whatever extent this is true,—and I believe there is truth in it,—it is owing to the simple household amusements of England.

An American Want.—One of the great wants of this country is a more liberal provision for amusements. We attach here too much value to wealth; and we pursue it with an intensity altogether incompatible with health. We cannot take time for recreation because we are in so great a hurry to be rich.

If we would save ourselves from a total wreck of health, we must take broader and better views of life. We must value it for its solid comforts, rather than for its glitter and show.

Contrary to the general belief, insanity is very prevalent among seamen and farmers. The former lead a life of dreary solitude upon the ocean; the latter, one, if not of equal, certainly of very objectionable solitude upon the land. The sailor who does business upon the great sea should provide himself with great numbers of games to amuse him in his wanderings. The farmers of our land should cultivate more of the sociabilities of life. Let them meet together in the fine summer evenings, like the peasants of France, and dance upon the green lawns before their cottages. They will till their lands more cheerfully for it; enjoy better spirits and health; and live to greater age.

Completeness of Life. — Amusements are necessary in order to give a completeness to life. The faculties of the human mind are numerous. It is only when they are all exercised, in their due proportion, that there is a harmonious beauty in our lives. The customs of society twist us all out of shape, — perverting us mentally, morally, and physically, and robbing us of every manly and healthful quality. Getting out of the ruts of fashionable life, we must come back to the simple paths of nature.

I would strongly impress upon parents, teachers, and guardians, the importance of studying well the various temperaments, physical and mental peculiarities of their children, in order to judge wisely of the kind and amount of recreation required by them.

Instance: a pale, delicate child of ten to twelve or fourteen years, with clear complexion, flaxen hair, blue eyes, slender frame, and a nervous, sensitive organization, with strong mental cast, requires much more recreation and out-door exercise than a full-blooded, robust child of that age; a fact not at present duly considered, as a general thing.

TEMPERAMENTS
AND
CONSTITUTION of the BODY
AND
SYMPTOMS of DISEASES

. It is necessary that the reader should understand the temperament
and constitution of the body and symptoms of diseases
that they may intelligently diagnose
the case.

TEMPERAMENTS, CONSTITUTION, AND SYMPTOMS.

MAN has *thinking, warming, nourishing, and moving* powers. For the performance of each of these great functions, he has organs of the best possible construction.

For Thinking, he has a *brain*. If this be *large in proportion to his other organs*, it gives a character, a cast, a peculiarity to his whole organization. Everything about him is subordinate to his brain. We recognize him, at once, as a thinking and feeling being. He has an intellectual *look*. There is a delicacy, a refinement, a sensitiveness, a studious habit, an air of thoughtfulness about him, which determine his traits, his tone, his temper, his whole character. Hence it is proper to say he has a *cephalic* or *thinking temperament*.

The Lungs and Heart, devoted to renewing and circulating the blood, are placed in the *chest* or *thorax*. If *these be large in man in proportion to other organs*, he is characterized by great activity of circulation, by a large supply of red blood, and by the general indications of a full, warm, and bounding life. This activity gives him his tone and temper, and shows that his is the *thoracic* or *calorific temperament*.

In the Great Cavity of the Abdomen is done the work of receiving, digesting, and disposing of the materials which nourish the body. If the organs which do this work *be large in proportion to others*, the body is fed to repletion, and the whole organization speaks of the table. The habit, the look, the temper, are all sluggish. This is the *abdominal* or *alimentary temperament*.

The Bones and Muscles are instruments by which the *movements* of the body are performed. If these be the largest, in proportion, of any in the body, then the locomotive powers are in higher perfection than any others. There is largeness of person, energy of movement, and greatness of endurance. The whole cast of the person partakes of the strength and coarseness of bone and muscle. This is the *muscular* or *locomotive temperament*.

This gives us four temperaments, as follows: —

I. The Cephalic Temperament, denoted by large brain, activity of mind, and general delicacy of organization.

II. The Thoracic Temperament, indicated by a large chest, force of circulation, redness of skin, great activity, warmth of temper, and fulness of life.

III. The Abdominal Temperament, denoted by a large development of the stomach, liver, bowels, and lymphatics; by a fulness of belly, fondness of high living, and a disposition to float sluggishly upon the current of the world, rather than to struggle against it.

IV. The Muscular Temperament, indicated by largeness of frame and limbs, coarseness of structure, and great power of locomotion and endurance.

There are some reasons for reckoning but three temperaments instead of four, by reducing the thoracic and abdominal to one, after the manner of the phrenological Fowlers, — especially as the organs in the chest, and their appendages, take an important part in the process of nutrition. But as the heart and lungs are placed in one cavity, and the stomach, liver, etc., in another, and as one set of these organs may be largely developed, and the other defectively, I have thought it most convenient, on the whole, and quite as philosophical, to retain the *four* temperaments.

These temperaments seldom or never appear single and pure. They mix and cross with each other in all possible ways.

Medication and Temperaments.

THE object of speaking of temperaments in this work is to make the reader acquainted with the principles upon which remedies are to be adapted to their development. The philosophical-minded physician will, in prescribing, always keep the temperament in view.

Persons of a Cephalic Temperament cannot bear powerful medicines, — particularly drastic purges. Their fine, delicate and sensitive organizations would be torn all to pieces by doses which would hardly be sufficient in a fully-developed muscular temperament. This should always be borne in mind in prescribing for persons of a large brain and delicate organization.

In this temperament, too, fevers, instead of running a high and fiery course, take the low typhoid type, the patient becoming pale, and showing a constant tendency to sink. Such patients would be killed by purging, leeching, cupping, sweating, and starving. They want tonics, stimulants, and every kind of support which the case will possibly permit.

Persons of a Thoracic Temperament, having a rapid circulation, and a fulness of blood, are most liable to inflammatory diseases. When fever attacks them, they have what is called a "high fever." If rheumatism comes, it is *acute* rheumatism. Disease takes hold of them *smartly*. As they do everything with emphasis and energy

when well, so, when ill, they make a business of it, and are sick with all their might.

Stimulants and tonics generally make such persons worse. They want sedatives, and diaphoretics, and sweats, and purgatives, and leeches, and cups, and low diet, and cold bathing, and whatever else will slacken the ferocious swiftness of their circulation.

Those of the Abdominal Temperament are not particularly subject either to very high fevers, or to those typhoid forms which produce sinking. As in the two temperaments noticed above, their complaints chiefly attack the organs most largely developed. Their diseases affect the stomach, the liver, the spleen, and the bowels. These are the largest organs in their bodies, and are most used; and, being overworked, they fall into disease.

As these persons are slothful in all their habits, so their diseases run a sluggish course. They are not so liable to sudden death as persons of either of the preceding temperaments. They have all sorts of *chronic* diseases which linger a great while, and are cured with much difficulty.

These persons will bear larger doses of medicine than either of the preceding. Neither do their constitutions respond as readily to medicine. A physician will be disappointed if he expects to see them recovering as fast under its use.

Those of a Muscular Temperament, having little fondness for anything but a hardy, active life, are much exposed to the elements. Though strong and long-enduring, the hardship of their lives often breaks them down, and when felled by disease, they are oftentimes shockingly racked and torn by it.

These persons bear large doses of medicine, and when sick, need to be treated with an energy proportioned to the strength of their constitution. Rheumatism, which affects the joints, the ligaments, and the tendons, is an affection from which they suffer severely.

The Constitution.

IN prescribing for disease, it is of very great importance to take notice of the constitution. This is a different matter from the temperaments. Persons of the same temperament are often quite unlike in the strength of their constitution. And those having good natural constitutions, frequently abuse them by improper habits and indulgences, and at length come to have broken and very feeble constitutions.

Some persons' muscles and other tissues are put together as if they were never intended to come apart. Like some of the woods of the forest,—the *lignum vitæ* for example,—they are fine-grained and tough. A real smart boy will wear out an iron rocking-horse sooner than one of these persons can exhaust their constitution by

hard work. Others, to outward appearance equally well made, have very little endurance, break down easily under hard work, and lose their flesh from trifling causes.

The state of the constitution, therefore, should always be learned before much medicine is given; for what a person of a strong constitution will *need*, may greatly injure a feeble person, even of the same temperament.

Habits.—These must likewise be attended to. Persons using stimulants require larger doses of medicine to affect them than other persons.

Climate.—Medicines act differently on the same persons in summer and winter. Narcotics act more powerfully in hot weather and climates than in cold, and must be given in smaller doses.

Idiosyncrasy.—Medicines of only ordinary activity, act very powerfully, and even violently on some persons. This is owing to a peculiarity of stomach, or constitution, called *idiosyncrasy*. It makes the person, in this particular, an *exception to the general rule*. And no physician can know beforehand in what particulars this exceptional disposition will show itself. Persons, however, learn their own idiosyncrasies, and should make them known to those who prescribe for them for the first time.

The Sex:—The peculiarities of each sex should never be forgotten in prescribing for the sick.

Males are not so sensitive as females. They will bear more medicine, and their nervous system is not so readily excited by it.

Influence of Age.—Human life is divided into *infancy*, *childhood*, *youth*, *manhood*, and *old age*. Each of these periods has peculiarities which modify disease.

The First Period, extending from birth to the age of seven years, is marked by tenderness and excitability, and is alive to every irritation. Teething and other disturbances occur at this period, and need careful management.

The Second Period extends from seven to fourteen, and is quite subject to disease, including the second dentition. During these two periods there is no great difference between the sexes; both are tender, and need careful watching.

During the Third Period, the changes occur which mark and separate the sexes. This is a developing period, when the functions become established, and the frame acquires form, proportion, and strength.

At this time, hereditary tendencies to disease, latent till now, begin to show themselves, and call for every possible endeavor to break them up, and fortify the constitution.

The Fourth Period embraces the vigorous maturity of life, when the powers of body and mind, in both sexes, are at the summit of their excellence. The functions are now well established. It is during this period that the female is subject to most of the harassing ailments peculiar to her sex. So numerous are these complaints, and so large and valued the class of persons affected by them, that he who treats them with the greatest skill, and with the delicacy which their nature demands, may be said to be at the head of his profession.

The Fifth Period is that of old age, when the functions are declining, and the frame is bending under the weight of years. Old age begins earlier with females than with males. Many ailments are common to this period, which require peculiar management, both medicinal and hygienic.

Proper Frequency of Dose.—Each succeeding dose should be given before the effect of the preceding is gone. If this rule is not attended to, the cure does not advance. What is gained by each dose is lost by the rallying of the disease in the interval. Care must be taken, however, not to apply this rule too strictly with very active medicines.

How to Examine a Patient.

WHEN a patient is presented for examination, having observed the temperament, constitution, sex, and age,

1. Learn the causes of the disease, whether local, specific, or general, and also its history.

2. Search out its nature and character, whether febrile or otherwise.

3. Take notice of the whole train of symptoms, — embracing the pulse, the condition of the mouth, tongue, and digestive organs, the breathing, the urine, the fecal discharges, the condition of the brain and nervous system, the state of the skin, etc.

Brief Table Explanatory of Symptoms.

GENERAL APPEARANCE OF PATIENT.

1. Tonic spasm of the trunk	indicates	Locked jaws.
2. Distorted features, altered position, and impaired motion of limbs	“	Paralysis of one side.
3. Irregular and perpetual motion	“	St. Vitus's dance.
4. Entire and absolute immobility	“	Catalepsy.
5. Great and unnatural boldness	“	Insanity or delirium.
6. Great and unusual languor	“	The beginning of an acute disease, or the progress of a chronic one.
7. Ability to lie only upon the back	“	Apoplexy. Organic disease of the brain or spinal marrow. Acute inflammation of the lining of the abdomen. Rheumatism of the joints.
8. Lying upon the face	“	Several kinds of colics.
9. Lying upon one side	“	Pleurisy, or inflammation of the lungs. When one lung only is affected in consumption, the patient generally lies on the diseased side.

10. Maintaining the sitting posture only	indicates	Disease of the heart or lungs, which interferes with breathing.
11. The head thrown back	"	Severe diseases of the larynx and wind-pipe.
12. Restlessness and tossings	"	The beginning of acute inflammation. Fevers. Delirium, and acute mania.
13. General enlargement of the body	"	Cell-dropsy. Emphysema from a wound of the chest.

Head, Face, and Neck.

1. Head bent to one side	indicates	Convulsions. Paralysis of one-half the body. Dislocation of bones of neck.
2. Head increased in size	"	Swelling of glands of neck.
3. Swollen scalp	"	Chronic hydropholus. Enlarged brain.
4. Dull expression of face	"	Erysipelas. Small-pox.
5. Full, red face, with blood-vessels of eyes injected	"	Typhoid fever.
6. Pinched, contracted countenance	"	Swelling of heart. Congestion of brain.
7. Pinched nose, sunken eyes, hollow temples, skin of forehead tense and dry, complexion livid	"	Acute inflammation of peritoneum. Exposure to severe cold.
8. Wrinkles across the forehead	"	Chronic disease just before death.
9. Wrinkles from forehead, vertically to root of nose	"	Excessive pain arising externally.
10. A white line from inner angle of the eye to just below the cheek-bone	"	Distress, anxiety, and severe internal pain.
11. White line from the upper border of the wing of the nose (ala nasi), curved to the outer margin of the orb of the eye	"	In children, a brain or nervous affection; in adults, abuse of the generative organs.
12. The white line in children from angle of mouth to lower part of face	"	In consumption and wasting of flesh. The lower part of the line indicates disease of stomach; the upper part, some affection of upper part of bowel. When united with the white line named above, and with a drawing in of the cheek, fixed eyes, and a wan complexion, it implies worms.
13. A white line external to the last two, in a semicircular direction towards the chin	"	An affection of the chest, with difficulty of breathing.
14. Swelling of the face and eyelids	"	Chronic and obstinate disease in the chest or belly.
15. Transient redness or flushing of face	"	Albumen in the urine.
16. Hectic flush	"	Suffering from the monthly irregularity.
17. Paleness of face	"	Consumption. Chronic affections.
18. Dingy, white, or greenish face	"	Cold stage of fever. Acute inflammation. Chronic diseases, especially Bright's disease, during recovery.
19. Yellow tint	"	A low and deficient state of blood.
20. A citron tint	"	Jaundice.
21. A bluish tint	"	Cancerous disease.
22. Perpetual motion of eyelids	"	Poor circulation in the veins. Cholera.
23. Forcible closure of eyelids	"	Typhus fever. Blue disease.
24. Eyelids remaining open	"	Mania and idiocy.
25. Palsy of the upper lid	"	Intolerance or dread of light.
26. Flowing of tears over the cheek	"	Orbicularis palpebrarum. Paralysis of the muscle which closes the eye.
27. Nostrils dilating forcibly and rapidly	"	Injury of the third pair of nerves.
28. Itching of nostrils in children	"	Obstruction of the lachrymal duct.
	"	Difficulty of breathing.
	"	Worms in the bowels.

The Tongue.

1. Surface of tongue covered with a layer of whitish, soft, mucous substance, which may partially be taken off with a scraper, also, clammy mouth	indicates	Derangement of stomach, or bowels, or both.
---	-----------	---

2. State of tongue as above, with clammy mouth, bitter taste, and fetid breath.	indicates	Acute dyspepsia. Asthma.
3. Great load on tongue as above, which <i>peels off</i> , leaving the tongue smooth, red and tender	"	Severe cases of acute dyspepsia.
4. Tongue slightly white from small white points, and sometimes covered with fur, like the fibres of coarse velvet	"	Chronic dyspepsia. Some affection of the liver, if the fur be yellow.
5. Tongue pale, tumid, clean and very smooth	"	Chlorosis or green sickness.
6. Tongue <i>furred</i> and <i>dry</i>	"	Violent local inflammation. Irritation in bowels.
7. Tongue white and loaded, with much thirst	"	Inflammatory fever.
8. As above at first, — afterwards clean, red, and dry	"	Protracted inflammatory fever.
9. Tongue white and loaded, with dryness	"	Mild typhus fever.
10. Tongue dry, parched, tender, and dark brown or black. Pushed out with great difficulty and trembling	"	Severer forms of typhus fever.
11. Tongue loaded with white, through which numerous elongated, very red papillæ protrude their points	"	Scarlet fever.

The Throat.

1. Throat enlarged	indicates	The approach of puberty in females.
2. Violent pulsation of carotid arteries	"	Acute mania. Inflammation of brain. Enlargement of heart, and dilation of right ventricle. Anemia.
3. Pulsation of the nameless artery (arteria innominata) above the breast bone, and to the right of the windpipe.	"	Regurgitation from aorta.
4. Circumscribed swelling about throat	"	Enlargement of glands.

The Chest.

1. General enlargement of one side of chest	indicates	Large effusion of water from pleurisy.
2. Bulging at the base of a lung	"	Water from pleurisy settling to the bottom.
3. Bulging at front upper part of chest	"	Emphysema.
4. Bulging right hypochondrium (See Fig. 95)	"	Enlargement of liver.
5. Bulging in region of heart	"	Water in heart-case. Enlargement of heart.
6. Tumor where the third rib joins the breast-bone	"	Aneurism of the ascending aorta.
7. Tumor between the base of the shoulder blade and the spine	"	Aneurism of the descending aorta.
8. Depression or retraction of one side of chest	"	Consumption. Absorption of fluid, effused by pleurisy.
9. Breathing increased in rapidity. Generally, in health, about twenty breaths are taken in a minute	"	Spasmodic asthma.
10. Breathing diminished in rapidity	"	Pleurisy. Paralysis of respiratory muscles. Inflammation of lungs. Emphysema. Pneumothorax. Consumption.
11. Jerking respiration	"	Spasmodic asthma. Obstruction in larynx and windpipe.
12. Breathing with muscles of ribs only	"	Abdominal inflammation. Inflammation of diaphragm.

The Belly.

1. Increased size of belly	indicates	Dropsy. Wind in bowels. Inflammation of peritoneum. Obstruction in bowels. Hysteria.
----------------------------	-----------	--

- | | |
|---|---|
| 2. Enlargement in epigastrium (Fig. 93) indicates | Hysteria. Cancer of stomach. |
| 3. Enlargement in hypogastrium (Fig. 95) " | Distension of bladder. Ovarian tumors. Accumulation of feces in bowels. |
| 4. Belly diminished in size | " Chronic dysentery. Lead colic. Also in most chronic diseases. |

Private Organs.

- | | | |
|-------------------------------|-----------|------------------------------------|
| 1. Enlarged penis in children | indicates | Stone in bladder. Masturbation. |
| 2. Drawing up of testicles | " | Stone in kidneys. |
| 3. Enlargement of scrotum | " | Hydrocele. Hematocele. Sarcocoele. |

The Limbs.

- | | | |
|-------------------------------|-----------|--|
| 1. The limbs immovable | indicates | Paralysis. |
| 2. Limbs contracted and rigid | " | Softening of the brain. |
| 3. General swelling of limbs | " | Defective circulation of blood. |
| 4. Swelling of joints | " | Rheumatism. Water in the joints. White swelling. |
| 5. Limbs diminished in size | " | Paralysis. |

The Nervous System.

- | | | |
|---|-----------|---|
| 1. Morbidly increased sensation | indicates | Acute inflammation of brain and spinal marrow. Fevers. Hysteria. |
| 2. Tensive pain | " | Phlegmonous inflammation. |
| 3. Dull, heavy pain | " | Enlarged internal organs. Internal tumor. Effusion of water into cavities lined with serous membranes. Felt in the loins previous to discharge from menstruation, and from piles. |
| 4. Smarting pain | " | Scarf-skin removed. |
| 5. Shooting, tearing pains | " | Neuralgia. Cancer. |
| 6. Boring pains | " | Constitutional syphilis. Rheumatism. Gout. Inflammation of periosteum. |
| 7. Contusive pains. | " | Bruises. Acute diseases. |
| 8. Itching. Sensation as of ants creeping over the skin | " | Several diseases of the skin. |
| 9. Exaltation of vision | " | Ophthalmia. Inflammation of brain. Some nervous diseases. |
| 10. Black flecks floating before the eyes | " | Affections of the brain and optic nerve. Dyspepsia. |
| 11. Painfully acute hearing | " | Inflammation of brain. Hysteria. |
| 12. Dull hearing | " | Typhus fever. |
| 13. Increase of strength | " | Delirium. Inflammation of brain. Mania. |
| 14. Debility | " | Most diseases. |
| 15. Trembling | " | Cold stage of fever. Nervous affections. Old age. Action on the system of lead, mercury, strong coffee, alcoholic drink, tobacco, opium. |
| 16. Rigidity of upper extremities | " | Softening of the brain. Infiltration of blood into the brain. Hysteria. |
| 17. Cramp | " | Pregnancy. Hysteria. Painters' colic. |
| 18. Temporary spasm | " | In convulsions of children. Some affections of the brain. |
| 19. Pain at extremity of penis | " | Stone in bladder. |
| 20. Pain in right shoulder | " | Congestion of liver. |
| 21. Pain in left shoulder | " | Disordered stomach. |
| 22. Exaltation of affections | " | Hypochondriasis. |
| 23. Loss of moral sensibility | " | Mania. Typhus fever. Masturbation. |
| 24. Exaltation of intellect | " | Melancholy. Sometimes indicates close of life. |

The Breathing.

- | | | |
|------------------------|-----------|--|
| 1. Stiffness of chest | indicates | Cartilages turned to bone. Pleura hardened. Distortion from rickets. |
| 2. Pressure upon parts | " | Tumors. Dropsy of belly. |

3. Obstruction of air-tubes	indicates	Spasm of glottis. Spasm near the small ends of bronchial tubes. Mucus, etc., thrown out upon the inner surface.
4. Compression of lungs	"	Effusions in pleurisy. Water in chest. Air in substance of lungs. Aneurism and other tumors.
5. Pain in parts moved in breathing	"	Pleurisy. Inflammation of peritoneum.
6. Paralysis of muscles of chest	"	Injury of spinal marrow.
7. Spasm of muscles of chest	"	Locked jaw. Spasmodic asthma.
8. Deficiency of red blood	"	Anæmia. Chlorosis or green sickness.

The Cough.

1. Hollow and barking cough	indicates	Last stage of consumption. Chronic bronchitis. Some nervous affections.
2. Sharp, ringing cough	"	Croup.
3. Hoarse cough	"	Beginning of cold. Chronic laryngitis.
4. Wheezing cough	"	Asthma.
5. Belching cough	"	Some diseases of larynx.
6. Cough in paroxysms	"	Whooping cough. Hysteria.
7. Cough sounding harsh and concentrated when listening with the stethoscope.	"	Consumption. Inflammation of the lungs. Pleurisy. Enlargement of bronchial tubes.
8. Cough sounding hollow, when listening with the stethoscope, as though it came from a cavern.	"	Tuberculous cavity. Enlarged bronchial tubes.
9. Cough having a metallic or ringing sound when listening with the stethoscope.	"	Large tuberculous cavity.

The Expectoration.

1. Scanty expectoration	indicates	First stage of acute diseases of the lungs.
2. Copious expectoration	"	Decline of acute diseases of air-passages and lungs.
3. Watery expectoration	"	Beginning of bronchitis. Congestion of lungs. Vesicular emphysema.
4. Mucous expectoration	"	Bronchitis. Inflammation of lungs.
5. Expectoration of pus	"	Consumption. Third stage of inflammation of lungs.
6. Expectorated matter shaped like coin (nummular)	"	Tubercular consumption. Bronchitis of measles.
7. Muco-purulent, flocculent expectoration	"	Consumption far advanced.
8. Tubular expectoration	"	Plastic bronchitis. Pneumonia.
9. Whitish or greenish expectoration, that clings to the vessel	"	Acute affections of lungs, particularly bronchitis
10. Yellow expectoration	"	Chronic bronchitis. Other chronic affections of the lungs and throat.
11. Rusty expectoration	"	Inflammation of the lungs.
12. Putrid smell of expectoration	"	Gangrene of the lungs.
13. Faint and sweetish smell of expectoration.	"	Bronchitis. First stage of consumption.
14. Expectoration smelling like garlic	"	Broncho-pleural fistula.

Pain.

1. Dull, heavy, aching pain at the base of the chest	indicates	Acute bronchitis.
2. Soreness about the breast bone, and between the shoulders	"	Acute bronchitis.
3. Sharp, sudden, tearing pain below the nipple	"	Pleurisy.
4. Pain darting from front part of chest to between shoulder blades	"	Consumption.
5. Constant pain between the shoulders	"	Consumption. Green sickness. Other chronic diseases.

The Pulse.

1. Strong pulse, resisting compression by the finger	indicates	Inflammatory affections, especially of the substance of large organs, as the liver, etc.
2. Weak pulse, easily pressed down	"	Prostration from disease. Nervous and chronic affections. Fear. Diseases of women and children, and old persons.
3. Full pulse, as if the artery were increased in size	"	Congestion of brain. Apoplexy. Disease of heart.
4. Small pulse, opposite of full	"	Inflammation of stomach, bowels, bladder, etc. Hysteria, and other nervous affections.
5. Hard, sharp, contracted pulse, — vibrating like a cord under the finger	"	Inflammation of membranes. Active bleedings. Lead colic, etc.
6. Soft pulse, yielding readily to pressure	"	Affections characterized by debility.
7. Frequent pulse	"	Inflammatory diseases. Hemorrhages.
8. Slow pulse	"	Apoplexy. Sometimes in disease of heart.

Relating to Digestion.

1. Tongue trembling and dry, and diminished in size	indicates	Typhoid and other low fevers.
2. Voracious appetite	"	Pregnancy. Hysteria. Insanity. Sometimes in dyspepsia.
3. Diminished appetite	"	In most acute diseases.
4. Increased thirst	"	Acute affections of stomach and bowels.
5. Thirst gone	"	Cerebral disease, with coma.
6. Vomiting	"	Early pregnancy. Colic. Disease of brain. Inflammation of stomach. Hernia.
7. Pain increased by pressure	"	Inflammation of internal organs.
8. Pain relieved by pressure	"	Over-distension of bowels. Neuralgia. Colic.
9. Urgent desire to go to stool	"	Dysentery. Sometimes in diarrhœa.
10. Watery stools	"	Diarrhœa. Cholera.
11. Mucous stools, like white of egg	"	Chronic inflammation of colon.
12. Hard and lumpy stools	"	Constipation. Colic. Cancer of stomach.
13. Clay-colored stools	"	Deficiency of bile.
14. Yellow or dark-brown stools	"	Too much bile.
15. Dark-green stools	"	Bile from children after taking calomel.
16. Stools red, and streaked with blood	"	Dysentery.
17. Pitchy black stools	"	Melæna.
18. Stools pure blood, with no colic	"	Bleeding piles.
19. Stools like rice-water	"	Asiatic cholera.
20. Black stools	"	Iron taken in medicine.
21. Shreds of false membrane in stools	"	Dysentery. Diarrhœa. Worms.
22. Fat with stools	"	Diabetes. Consumption.
23. Fetid stools	"	Diseases attended by debility.

The Urine.

1. Diminished secretion of urine	indicates	Dropsy. Inflammatory and febrile diseases.
2. Retention of urine in the bladder	"	Paralysis. Typhoid fever. Hysteria.
3. Urine increased in amount	"	Diabetes. Cold stage of fevers. Hysteria. Various passions of the mind.
4. Red or yellow sand deposits in urine (uric acid)	"	Fevers. Acute Rheumatism. Consumption. Dyspepsia. Great indulgence in animal food.
5. White sediment in urine (earthy phosphates)	"	Depressed state of the nervous system, of serious import.
6. Oxalate of lime deposits in urine	"	Derangement of digestion.
7. Blood in urine	"	Bleeding of kidneys, etc.
8. Albumen in urine	"	Bright's disease.
9. Mucus in urine	"	Inflamed mucous membrane of urethra, bladder, etc.
10. Sugar in urine	"	Diabetes.

The Perspiration.

1. Profuse perspiration	indicates	Acute rheumatism. Decline of acute inflammations and fevers, being sometimes critical.
2. Diminished perspiration	"	Early stage of acute disease. Dropsy. Diabetes.
3. Night sweats	"	Consumption.
4. Sour-smelling sweat	"	Rheumatism. Gout.
5. Fetid smelling sweat	"	Some debilitating fevers.
6. Sweat with mouldy odor	"	Measles. Scarlet fever.
7. Smelling like ammonia	"	Typhoid fever sometimes.
8. Sweat having the odor of mice	"	Insanity.
9. Sweat smelling like rottenstone	"	Miliary.

The Temperature.

1. General heat of surface	indicates	Fevers.
2. External local heat	"	Inflammation.
3. Hot forehead	"	Headache.
4. Hot scalp	"	Disease of brain.
5. Skin of chest hot	"	Inflammation in chest.
6. Hands and feet hot.	"	Consumption.
7. Acrid heat, burning the hand when applied	"	Typhus fever.
8. Chills	"	Beginning of fever.
9. Low temperature	"	Poor circulation.
10. Cold hands and feet	"	Nervous diseases. Dyspepsia. Impure state of the blood.

The Temperature of the Body.

THE use of the thermometer is an important addition to the means of making physical examination, and is one of the improvements in modern medicine.

It is intended to measure the heat of the body.

The best kind now in use is the self-registering.

The bulb of the instrument is to be placed in the warmest part of the body, and should be allowed to remain there for eight to ten minutes.

Some place it under the tongue; some in the axilla.

Sometimes it is necessary to introduce it into the rectum or vagina. In these parts the temperature is a degree higher than in other parts.

The normal temperature of the body is from 98° to 99° Fahrenheit, in the great majority of persons.

Exceptionally it may be half or a whole degree either above or below this range.

The normal fluctuations are inconsiderable in comparison with the variations of disease.

The natural variations in health are as follows: The temperature is at its minimum at five o'clock A. M.; the maximum is reached in the latter part of the afternoon, and then decreases till five o'clock A. M.

By means of the thermometer we are able to determine all differences with precision.

The increase of heat in different febrile diseases rarely exceeds 110° Fahrenheit, and as a rule the amount of increase is a criterion of its severity.

An increase to 100° Fahrenheit or 101° is evidence of mildness of the disease.

If the thermometer indicates steadily 105° Fahrenheit, it is certain that the disease is severe.

A persisting temperature above 105° Fahrenheit denotes that there is great danger, and an increase to 108° to 110° Fahrenheit is usually a fatal sign.

The abnormal changes of temperature consist of more or less increase.

Diminution below the normal standard is comparatively rare; yet it sometimes occurs and is of some importance.

In the course of typhoid fever, a sudden decrease may indicate intestinal hemorrhage. Sometimes the temperature falls without improvement in the other symptoms. This is an unfavorable symptom.

The value of thermometric changes depends in no small measure upon the symptoms with which they are associated.

Sickness during Life.

It is estimated that 2 years' sickness is experienced by every person before they are 70 years old, and that 10 days per annum is the average sickness of human life. Till 40 it is half, and after 50 increases. The miscellaneous diet of man is the cause of many diseases.

Human Longevity.

OF 100,000 male and female children, in the first month of life they are reduced to 90,506 or nearly a tenth. In the second to 88,155. In the third to 85,976. In the fourth to 85,139. In the fifth to 84,122. In the sixth to 82,635, and by the end of the first year to 76,938, the deaths being 2 in 10. The next four years reduces the 76,938 to 63,048, indicating 36,952 deaths before the completion of the fifth year.

At 25 years the 100,000 are about half, or 49,695; at 55 about a third; at 59 about a fourth, or about 25,000; at 67 about a fifth; at 75, a tenth; at 80, a twentieth, or 5,000, and 10 attain 100 years.

About the age of 35 the lean man usually becomes fatter, and the fat man leaner. Again, between the years 45 and 50 is generally a critical time in a man's life, his appetite fails, he becomes logy, and tires easily upon the least exertion of body or mind. His muscles become flabby, his spirits droop and his sleep is poor and unrefreshing. After suffering under these complaints a year or two, he seems to acquire new vigor, and goes on to 62 or 63, when a similar change takes place, but when improvement comes he is apt to go on to a ripe old age.

Strength and Warmth Derived from Different Articles of Food and Drink.

Strength derived from articles of food and drink.

Grains of Strength yielded by one pound of 7,000 grains.

	Grains
Parsnips,	12
Turnips,	13
Whey,	13
Greens,	14
Potatoes,	24
Skimmed Milk,	35
New Milk,	35
Buttermilk,	36
Barley,	70
Rice,	70
Bacon,	78
Rye Bread,	89
Baker's Bread,	90
Fresh Pork,	109
Corn Meal,	125
Fresh Fish,	129
Cocoa,	130
Oatmeal,	140
Mutton,	140
Fresh Beef,	173
Beef Liver,	200
Split Peas,	250
Cheddar Cheese,	310
Skim Milk Cheese	361

Warmth derived from one pound of different articles of food

Grains of Warmth yielded by one pound of 7,000 grains.

	Grains
Whey,	151
Turnips,	238
Buttermilk,	335
Skimmed Milk,	352
New Milk,	378
Carrots,	390
Parsnips,	426
Potatoes,	770
Fresh Fish,	980
Beef Liver,	1,220
Red Herrings,	1,456
Baker's Bread,	1,990
Fresh Beef,	2,300
Molasses,	2,300
Skim Milk Cheese,	2,355
Seconds Flour,	2,700
Rye Bread,	2,700
Rice,	2,755
Barley Meal,	2,780
Indian Meal,	2,806
Sugar,	2,900
Fresh Pork,	3,100
Bacon,	4,201
Butter,	4,700
Lard,	4,806

The stature of the body at birth
and subsequent ages.

The additional length of life a person is expected to live after reaching the age of 20 years and each subsequent year to 70 years old.

STATURE OF MALES			STATURE OF FEMALES			YEARS		YEARS	
Age	Feet	Lbs.	Age	Feet	Lbs.	Age	Expectancy	Age	Expectancy
0	1.65	7.05	0	1.63	6.42	20	41½	46	24
2	2.60	25.02	2	2.55	23.53	21	40¾	47	23¼
4	3.05	31.38	4	3.01	28.67	22	40	48	22½
6	3.44	38.81	6	3.38	35.29	23	39½	49	22
9	4.01	49.95	9	3.93	47.10	24	38¾	50	21¼
11	4.36	59.78	11	4.26	56.57	25	38	51	20¼
13	4.73	75.81	13	4.61	72.65	26	37¼	52	19¾
15	5.08	96.40	15	4.92	89.04	27	36½	53	19
17	5.36	116.56	17	5.10	104.34	28	35¾	54	18¼
18	5.44	127.60	18	5.15	112.55	29	35	55	17¾
20	5.50	132.46	20	5.16	115.30	30	34½	56	17
30	5.52	140.38	30	5.18	119.82	31	33¾	57	16¼
40	5.52	140.43	40	5.18	121.81	32	33	58	15½
50	5.50	139.96	50	5.05	123.86	33	32½	59	15
60	5.38	136.08	60	4.98	119.76	34	31¾	60	14½
70	5.32	131.28	70	4.97	113.60	35	31	61	14
80	5.29	127.55	80	4.95	108.80	36	30½	62	13½
90	5.28	127.54	90	4.94	108.81	37	29¾	63	13
						38	29	64	12½
						39	28¼	65	11¾
						40	27¾	66	11¼
						41	27	67	10¾
						42	26½	68	10¼
						43	25¾	69	9¾
						44	25¼	70	9¼
						45	24½		

Weight of the Human Body.

THE weight of the male at birth is 7 lbs., that of the female is about 6½ lbs. The maximum weight (140½ lbs.) of the male is attained at 40; that of the female (nearly 124 lbs.) is attained at 50. The full grown adult is 20 times as heavy as a new-born infant. In the first year he triples his weight. At an equality of age the male is heavier than the female. Towards the age of 12 years only, an individual of each sex has the same weight.

Children lose weight the first three days after birth; at the age of a week their weight gradually increases; after 1 year they triple in weight and require 6 years to double their weight, and 13 to quadruple it.

SYMPTOMS

That quickly tell what your complaint is.

Backache.

Leucorrhea. *Whites.*—Discharge from the vagina (catarrh) slight or profuse; thin, glairy; thick, lumpy or stringy; watery or milky; yellowish, greenish, bloody or purulent; odorless or offensive; bland or excoriating, with heat, burning and itching of genitals; headache; dizziness; backache; indigestion.

Displacement of the Uterus.—Weight in lower abdomen; pressing and bearing down sensations; disturbances of menstruation; backache.

Bowels.

Hernia. *Rupture.*—May be protrusion of intestines in groin, which can be pushed back; or strangulated, when not reducible, with inflammation, pain, nausea, vomiting, constipation, cold sweat, anxiety, gangrene.

Colic, Intestinal.—Paroxysms of severe, twisting or boring pain, centering about navel, radiating through abdomen, better from friction and pressure; abdomen usually distended; may be cold sweat, feeble pulse, and vomiting.

Inflammation of the Bowels.—Colicky pains in the bowels; diarrhoea, with thin, liquid stools containing undigested food and mucus, sometimes blood-streaked; tenderness; high fever; rapid pulse; patient lies on back, with legs drawn up.

Peritonitis, Acute.—Sudden onset, with chill; sharp, and cutting pains in abdomen, with great tenderness; distention of bowels with gas; high fever; hiccough; nausea, vomiting, and constipation; patient lies on back with knees drawn up; pulse small, rapid, “wiry.”

Dysentery.—Constant desire to evacuate the bowels, with much straining, and never-get-done feeling; small stools containing mucus and blood; pain; tenderness; prostration.

Cholera Morbus.—Cramps in the stomach and abdomen; vomiting and purging of bilious matter; frequent and copious evacuations; thirst; moderate fever; headache; great prostration; coldness of extremities.

Cholera Infantum.—Vomiting and purging; thin, watery, musty smelling stools; intense thirst; great restlessness; hollow eyes; pinched, pale face; rapid, feeble pulse; rapid emaciation; great exhaustion.

Chills.

Influenza. *La Grippe.*—Abrupt onset; great prostration; chilliness; stiffness, bruised pain in muscles of neck, back and legs; severe pain in head; sneezing, hoarseness and paroxysmal hard cough; running from nose; breathing difficult; or acute nervous symptoms with sleeplessness, intolerable pain in head, delirium, meningitis or severe gastric disturbance or symptoms as in typhoid fever.

Bronchitis, Acute.—Chilliness; debility; soreness and constriction behind breast bone; slight fever; irritative, dry, painful cough becoming loose, with partly mucous, partly purulent expectoration; difficult breathing.

Mumps.—Chilliness; debility; moderate fever; pain in angle of the jaw; doughy swelling of parotid gland; often swelling of other glands under one or both sides of jaw, and in throat; increase of saliva; may be sympathetic swelling of breasts or testicles.

Bright's Disease, Acute.—Chill followed by fever; nausea; face puffy; extremities swollen and dropsical; dull pain over kidneys, extending downward; frequent urination; quantity of urine diminished; urine smoky, reddish, turbid and contains albumen.

Bright's Disease, Chronic.—Slower development of symptoms as in acute form; general debility; headache; indigestion; lassitude; nausea; drowsiness; much swelling and dropsy.

Cough.

Bronchitis, Chronic. *Winter Cough.*—Persistent cough, with more or less partly mucous, partly purulent expectoration; soreness behind breast bone; shortness of breath; oppression; rales in chest.

Croup, False Membranous.—Peculiar ringing cough, becoming muffled; hoarseness and difficult breathing continue after a spasm passes; false membrane is coughed up; great restlessness and agitation; clutching at the throat.

Whooping Cough.—In the beginning, slight fever, sneezing, running from the nose, dry cough; in one or two weeks cough more violent and in hard paroxysms, with eyes congested, face bluish, veins disturbed, often vomiting, may be nosebleed, long drawn, shrill whoop at end of paroxysm.

Asthma.—Sudden attacks generally at night; great oppression in chest; distressed breathing, cannot "catch his breath;" profuse perspiration; face pale and anxious; cough and expectoration of thick, tenacious mucus; loud wheezing in chest.

Constipation.

Prolapsus Ani.—Descent or protrusion of mucous membrane of lower bowel through the anus; irritation; constipation; straining at stool.

Piles.—Veins of rectum distended in little lumps; may protrude, bleed, itch, be sore, cause or aggravate constipation.

Depression.

Hydrophobia.—Anxiety; depression; restlessness; pain in wound; slight fever; increasing difficulty in swallowing; spasm of muscles of neck, especially at sight of water; salivation; convulsions; delirium; exhaustion; suffocation; heart failure.

Opium Poisoning, Chronic.—Loss of flesh and strength; trembling; debility; sallow complexion; loss of appetite; disturbed sleep; mental depression; irritability; tendency to lie and deceive; irresistible craving for the drug.

Eyelids.

Stye.—Small, painful boil on eyelid, with heat, redness, swelling, and rapid suppuration.

Tracoma.—Inflammation and thickening of the lining membrane of the eyelids, with formation of granulations on inner side of lids.

Ear.

Inflammation of Middle Ear. Otitis Media.—Inflammation; pain; swelling of the drum and lining membrane of middle ear; watery discharge; with suppurating form, acute pain; ringing in ear; deafness; fever; formation of pus; bulging of drum which may rupture.

Fever.

Chicken Pox.—Fever; chilliness; sparse, superficial eruption of crop of pimples, most abundant on the trunk, drying up in two or three days, with depressed, blackish crust in centre.

Fever and Ague.—Debility; nausea; vertigo; shivering, increasing to severe chill, with chattering of teeth; “goose skin”; hurried shallow breathing; small, rapid pulse. Chill, followed by fever, with face flushed; eyes red; pulse full and rapid; pain in back and limbs; intense thirst; urine scanty. Hot stage followed by free perspiration; decline of fever; increase of urine.

Scarlet Fever.—Vomiting or convulsions; may be a chill; high fever; rapid pulse; heavily coated, then bright red, swollen tongue; throat red, sore; swallowing painful; glands enlarged; great thirst;

scanty urine; fine, diffuse, red rash first on neck and chest; lasting five to seven days, and disappearing momentarily on pressure; eruption leaves branny scales; great restlessness, sleeplessness, headache, often convulsions.

Typhoid Fever.—Gradual onset with headache, debility, vague pains, nosebleed, may be slight diarrhoea, loss of appetite, then gradual rise of temperature, lower mornings, higher evenings; abdomen swollen and tender; with rose-colored spots on abdomen seventh to ninth day; spots disappear on pressure; gurgling in abdomen; pea soup diarrhoea; tongue becomes dry, brown; teeth and lips covered with sticky deposit; delirium or stupor; bleeding from bowels; picking at bed clothes.

† **Typhus Fever.**—Sudden pain in head, back and legs; extreme prostration; fever reaching 104 to 105° in from two to three days, and remaining high about two weeks; rapid, weak pulse; musty odor; face livid and dull; pupils of eyes contracted; coarse, mulberry rash fourth or fifth day on trunk and extremities; urine scanty; marked nervous symptoms; bowels constipated.

Yellow Fever.—Chill, pain in head, back and limbs; rapidly rising fever; vomiting; thirst; constipation; then remission of symptoms for six hours, followed by their acute return; jaundice of skin; black vomit; bleeding from mouth, bladder, etc.; scanty or suppressed urine; great prostration; collapse and death or slow convalescence.

Smallpox.—Chill or series of chills, followed by vomiting and intense pain in small of back; rapidly increasing fever, falling the third or fourth day; rising again seventh or eighth day; pulse full, rapid; skin dry; breathing hurried; red spots first on forehead, face and wrists having hard, shot-like feel; skin between is swollen; soft, yellow, offensive crusts; spots may run together or black and blue spots form.

Rheumatic Fever.—Sudden reddening, swelling and tenderness of one of the large joints, with intense pain; sudden shifting of symptoms to another joint; moderately high fever; rapid, bounding pulse; scanty urine; no appetite; constipation; heavily coated tongue.

Cholera, Asiatic.—Vomiting alternating with painless diarrhoea; frequent, sudden rice-water movements from bowels; excruciating cramps in calves of legs, thighs, arms, and abdomen; face pinched, blue, sunken; cold, clammy sweat; pulse thready, weak; breath cool; voice husky; collapse and stupor.

Inflammation of Spinal Cord, Acute.—Moderate fever; loss of appetite; coated tongue; constipation; followed by radiating pains from back to limbs, with numbness, tingling or burning; pain about waist; loss of motion of limbs and increasing paralysis.

Spotted Fever. *Epidemic Cerebro-spinal Meningitis.*—Sudden onset; chill followed by fever; nausea; great thirst; vomiting; severe, continuous headaches; painful stiffness and retraction of muscles of the neck; dusky mottling of the skin.

Measles.—Sneezing; hoarseness; cough; running from eyes and nose; eyes red and sensitive to light; moderate fever; eruption of small pale or dark red velvety spots on face, then on trunk and extremities, with itching and burning; eruption lasts four days to a week.

Heart.

Weak Heart.—Palpitation, with feeling of oppression about chest; fluttering, irregular pulse; headache; dizziness; bloodlessness; debility; indigestion.

Enlargement of the Heart. *Hypertrophy.*—When excessive there may be weight and discomfort in the chest; bulging of chest wall; a heaving impulse of heart against chest; shortness of breath; headache; vertigo; ringing in the ears; paroxysmal cough; palpitation; indigestion; sleeplessness.

Neuralgia of the Heart. *Angina Pectoris.*—Sudden attacks of excruciating pain in the heart, with horrible sense of suffocation; face pale and cold; pulse variable, often weak and irregular; pain in left shoulder; attack passes off with belching of gas.

Inflammation of the Heart.—Pain in region of the heart, sense of oppression; anxiety; difficult breathing; fever; slight cough; headache; vertigo; may be nausea; irregular action of heart; palpitation.

Headache.

Chlorosis. *Green Sickness.*—Impoverished blood at puberty; greenish pallor of skin; palpitation; indigestion; nosebleed; irritability; appetite for chalk, slate pencils, etc.; debility.

Brain Fever.—Intense headache; vertigo; intolerance to light and sound; restlessness; heat in head; eyes bloodshot; fever; later, drowsiness and inclination to vomit; convulsions in children; rapid, feeble pulse.

Insensibility.

Epilepsy.—Peculiar, premonitory sensation beginning in finger or toe, followed by sharp cry, and sudden fall to the floor, with partial or complete loss of consciousness, frothing at mouth; biting of the tongue; clenching of fingers; face becomes bluish; pupils dilated; stupor for a varying period follows, or immediate consciousness with soreness, weakness and mental confusion.

Hysteria.—Convulsive seizures simulating epilepsy, but patient generally falls in a comfortable place; is only apparently unconscious;

screams, cries, or laughs; urine often retained; sensation of ball in the throat; headache as of nail in the head; may be partial paralysis, or legs and arms thrown wildly about.

Apoplexy.—Patient suddenly falls unconscious; face flushed; breathing labored; pulse full and slow; paralysis on one side; tongue protruded; may be convulsions, and involuntary passage of urine and feces.

Catalepsy. *Trance.*—Patient apparently insensible; lies quiet; limbs remain in any position they are placed; muscles stiff and unyielding.

Sunstroke.—Weakness, dizziness and faintness after exposure to heat, or partial or complete unconsciousness; pallor of face; cold sweat; shallow, hurried breathing; or dry, burning skin; face and eyes congested; pulse full and rapid; pupils contracted; stupor; a dangerous form.

Paralysis.—Attack preceded by numbness, coldness, paleness, and slight convulsive jerking or twitching, followed by loss of motion partial or complete, and of upper or lower half of body, or one or both sides; may be loss of speech and other faculties.

Lungs.

Bleeding from the Lungs.—May be preceded by cough, difficult breathing, warmth or tenderness in chest, salty taste in mouth; blood may gush up or be coughed up, will be bright red, fluid, and frothy, and taste sweetish or salty.

Pneumonia. *Lung Fever.*—Sudden hard chill and sharp pain in the side, with sharp rise of temperature, generally falling suddenly to normal the fifth, seventh or ninth day; shallow, very rapid, difficult breathing; short, dry, hard cough, later with blood-streaked, rusty expectoration, becoming free and like prune juice; pain in chest; no appetite; tongue coated; thirst, scanty urine; congestion and consolidation of lungs; may be typhoid symptoms.

Consumption. *Pulmonary Tuberculosis.*—Fatigue and short breath on slight exertion; loss of appetite; imperfect digestion; paleness, with hectic flush over cheek bones; irregular fever; hacking cough, at first dry, later with increasing expectoration; night sweats; loss of weight; bleeding from lungs; may be diarrhoea; tubercle bacillus in expectoration; contraction of chest; swelling of feet.

Nose.

Hay Fever.—Great susceptibility to pollen of rag weed, hay, roses, etc.; redness of eyes, swelling of eyelids; sneezing; running from eyes and nose; obstruction of nose; headache; cough; may be asthma.

Catarrh, Chronic Nasal.—Mucous or partly mucous, partly purulent discharge from nose, obstruction of nostrils; mouth breathing; nasal voice; headache in forehead; dropping of secretions into throat; frequent hawking; may be deafness and loss of taste or smell.

Pain.

Inflammation of the Liver.—Drawing sensation on the right side in region of the liver; slight chill; fever; headache; indigestion; loss of appetite; may be nausea and vomiting; slight jaundice; scant urine; sometimes hiccough; weakness; loss of flesh.

Lockjaw. Tetanus.—Painful, increasing stiffness of the head, neck, and pain extending to back, abdomen and extremities; corners of mouth drawn upward; jaws tightly closed; body convulsively arched or rigidly straight; slightest touch causes spasm with great pain.

Pleurisy.—Sharp, stabbing pain in the side, worse on deep breathing and motion; breathing feeble, shallow and rapid; slight, irritative cough; scanty, frothy expectoration; may be effusion of fluid into covering of lungs, with chills, fever, sweats and emaciation.

Gout.—Restlessness; wakefulness; irritability; dyspepsia; scanty, high-colored urine; agonizing pain and tenderness in ball of great toe; toe reddish purple and glazed; veins enlarged; in chronic gout joints enlarged, deformed, chalky, stiff, may ulcerate.

Gall Stone Colic.—Passage of gall stones causes sudden, agonizing, cutting, tearing or shooting pain on the right side of abdomen, spreading to right side of chest and shoulder; muscles of abdomen cramped and tender; nausea; vomiting; profuse sweat; frequent urination; pale, distorted, anxious face; feeble pulses.

Painter's Colic.—Violent, painful contractions of the abdominal muscles; hollowing in of the abdomen; obstinate constipation; gripping, cutting pains; may be blue line around the gums.

White Swelling. Tubercular Arthritis.—Dull pain in joints, worse by motion or jarring; tenderness on pressure; more or less swelling and exudation of fluid; wasting of muscles above and below; skin white and shiny.

Sciatica.—Sharp, shooting pain running down the back of thigh; worse from motion; may be tingling and numbness, and nerves sensitive to touch; worse at night and in stormy weather.

Stone in the Kidneys.—Constant dull pain in the loin; on passage of stone, excruciating paroxysm of pain radiating into groin and bladder; numbness of thigh; nausea; vomiting; sweat; rapid pulse; sufferer may faint.

Inflammation of the Testicles. *Orchitis*.—Drawing, stretching pains from abdomen through spermatic cords and testicles; testicles swollen, sensitive, with soreness and tearing pains; drawing up of testicles, burning and difficulty in urinating.

Writer's Cramp.—Fatigue, weight or actual pain in muscles of hand; spasm of muscles when fingers grasp a pen; hand may tremble or neuralgic pain occur.

Hip Joint Disease.—Slight lameness; stiffness of muscles about the joint; progressive wasting of muscles of thigh; limping, with shortening of leg; more or less fluid in joint, and restriction of motion; formation of abscess, with pain and tenderness; deformity of hip.

Poisoning.

Arsenic Poisoning.—Burning in stomach and bowels; cramps in abdomen and legs; vomiting followed by diarrhœa; rice-water stools which are bloody.

Lead Poisoning.—Obstinate constipation; abdominal colic; wrist drop; blue line about the gums; cramps in the legs; pains in the joints; trembling of extremities; intense headache; may be convulsions, delirium and lethargy.

Skin.

Eczema. *Salt Rheum*.—Inflammation of skin, with watery pimples or pustules forming scales and crusts; itching; burning; watery or yellow sticky discharge, or oozing; raw surface beneath crusts; or dry, scaly patches, without itching.

Itch. *Scabies*.—Small pimples first appearing between fingers, in creases of wrists, groin, armpit, under the breasts, on inner side of thighs, with intense itching.

Ringworm of the Scalp.—Small, separate, round or irregularly shaped, reddened scaly patches, turning to little vesicles filled with matter, which dry up and scale off; hair dead and brittle; patches spread rapidly.

Shingles. *Herpes Zoster*.—Pin head to pea-sized watery pimples along a nerve, preceded, accompanied or followed by neuralgic pains in affected part; one side of body only; fluid dries up, and yellow-brown crusts form and drop off.

Nettle Rash. *Urticaria*.—Skin shows pale red elevations, itching intensely; finger drawn over surface causes white line which becomes elevated and red; eruption on covered parts of body especially.

Boil.—Small, limited, painful tumor beginning as a sore, itching pimple, developing a core of dead tissue, and suppurating.

Carbuncle.—Dark red, painful, circumscribed, flattened swelling, surrounded by dusky-red skin, appearing on neck, back or buttocks, suppurating in a week or ten days, and discharging through several openings.

Cancer of the Skin. *Epithelioma.*—In the beginning a few greasy scales or papery crust covering three or four shallow irregular ulcers with hard margin; or may be deep-seated, shiny, hard, red lump, changing to ulcer with blood-stained yellow fluid, or offensive sticky discharge; sharp, shooting pains.

Blackheads. *Acne.*—Small pimples on face, chest, shoulders, back, neck; moist or dry; reddish or black; with or without indigestion, debility, menstrual disorders; may contain matter or cheesy substance.

Warts.—Pinhead to bean-sized, limited elevation of the skin; some soft, red, dry or moist; bleed easily; some soft and pearly; others hard, black, flat or rounded.

Gangrene. *Mortification.*—In dry form, skin pale, dry, shriveled, semi-translucent, with bluish-mottled specks becoming dark, opaque, mummified; in moist form, congestion of part; skin dark, livid, moist; tissues soften and break down; foul odor.

Ulcers.—Sore on leg or elsewhere, red, inflamed, irritable, with painful, ragged edge; or varicose ulcer with much distention of nearby veins; or syphilitic ulcer with punched-out looking sore, and offensive discharge.

Milk Crust.—Small pimples form on face or scalp of infants and children, with redness and itching; pimples rupture and exude a sticky fluid forming yellow crust, with raw surface underneath.

Scurvy.—Great debility; bloodlessness; spongy, bleeding gums, with foul breath; teeth loosened; pain in legs; skin dry and rough; flesh brawny and hard; complexion shallow; bleeding from mouth, bladder, etc.; short breath; feeble pulse.

Erysipelas.—Slight fever, chilliness, tingling of affected part, which becomes glossy, bright red or brawny, swollen, hard, sharply defined; fever increases; pulse full, rapid; appetite lost; bowels constipated; tongue coated; small pimples form; inflammation spreads or begins to subside in four or five days.

Swelling.

Scrofula.—Swelling and suppuration of glands of neck, groin and under the arms; sometimes slight fever, debility, emaciation; free perspiration, especially about the head.

Goitre.—Usually non-painful, non-tender swelling of varying size of thyroid gland in neck; when large, causing difficult breathing, headache, flushed face; may be shooting pains.

Dropsy.—Swelling of feet, hands, legs, abdomen or chest in lung, liver, kidney or heart disease; swelling and paleness of skin; surface hard and pitting on pressure of finger.

Goitre, Exophthalmic.—Debility and bloodlessness; enlargement of thyroid gland; protrusion and staring appearance of eyes; palpitation; pulse beats 100° to 140° a minute; blowing sound over gland.

Stomach.

Dyspepsia, Nervous.—Tongue often clean, appetite very variable, may crave acids, slate pencils, etc.; headache; vertigo; irritability; depression; sleeplessness or bad dreams; lassitude; palpitation; lump in the chest.

Dyspepsia, Catarrhal.—Loss of appetite; sense of fullness and discomfort; eructations; nausea and sometimes vomiting; tongue heavily coated; mucus in vomitus and stools; may be diarrhoea; hiccough; heartburn.

Bleeding from the Stomach.—Usually occurs with vomiting and is provoked by taking food; blood is dark, clotted, and generally mixed with contents of stomach.

Neuralgia of the Stomach.—Intense, griping, agonizing pain in stomach usually extending to the back, with belching of gas, faintness, and intermittent pulse; symptoms partially relieved by pressure over stomach.

Cancer of the Stomach.—Indigestion; great acidity; flatulence; loss of appetite; foul breath; great debility; emaciation; vomiting; coffee-ground vomit from retained blood; pain, more or less continuous.

Colic in Infants.—Sudden paroxysms of spasmodic crying often waking child from sleep; jerking of the feet; clenching of the hands; sudden drawing up, then straightening of the legs; flatulence; distention or retraction of the abdomen; contortions of whole body.

Sores.

Syphilis. First Stage.—Within a month of exposure, small, red sore appears on genitals, which enlarges and breaks in centre, leaving ulcer; nearby glands enlarge and become hard; may be no impairment of general health.

Syphilis. Second Stage.—Within six or eight weeks, sore throat; moderate fever; languor; headache; bone pains; indigestion; ulcers

on throat or tonsils; dull copper-hued eruption on abdomen, chest, arms, shoulders, genitals.

Syphilis. *Third Stage.*—Within one or many years, pustules on body which form deep ulcers, with dry crusts and scales; loathsome sores leaving bad scars; ulceration of throat, palate, nose; hard lumps in muscles and under skin.

Abscess.—Localized inflammation, with heat, swelling, pain, formation of pus, tendency to point and discharge matter.

Throat.

Tonsilitis.—Tonsils swollen; difficulty in swallowing and much pain; often cheesy spots or patches on tonsils and throat; dribbling of saliva; fever; headache.

Enlarged Tonsils.—Tonsils too large; may contain minute cavities containing foul, cheesy matter; mouth breathing, difficult swallowing; snoring during sleep; mental dullness; night terrors; deafness; bad breath; thick voice.

Quinsy.—Tonsilitis symptoms, together with inflammation of deeper tissues; chills; high fever; swelling of glands of neck; supuration, and formation of tonsilar abscess, with tendency to point and discharge.

Croup, Spasmodic.—Hoarseness and slight cough during day; sudden awakening at night by severe paroxysm of suffocative, hard, barking cough; skin hot; pulse tense and rapid; perspiration.

Pharyngitis.—Soreness of back of mouth and throat; pain on swallowing or difficult swallowing; coating of glairy mucus on roof of mouth, tonsils and throat; some fever; swelling of affected parts.

Diphtheria.—Chills, moderate fever, sore throat, indisposition, followed by stiffness and swelling of glands of neck; grayish white membrane in throat, removal of which causes bleeding; weak pulse, scanty urine; detection of Klebs-Löffler bacillus.

Thrush.—Swollen, red, spongy gums; flaky, white deposits of lining membrane of mouth, leaving bleeding spots when removed; fever; pain in mouth; mouth waters; bad breath.

Urine.

Incontinence of Urine. *Enuresis.*—Profuse involuntary flow of pale, watery urine; constant dribbling of urine while sitting or walking; dribbling of scanty, high colored urine; wetting the bed at night.

Retention of Urine. *Strangury*.—Urine passed drop by drop, with much urging and straining; pain and heat along the urethra; difficult, scanty urination.

Stone in the Bladder.—Irritation and inflammation of bladder; frequent burning discharge of small amounts of urine, with urging; acute pain on passage of stone, with bloody urine; sudden stoppage of stream of urine.

Inflammation of the Bladder. *Cystitis*.—May begin with chilliness and fever, then constant dull ache, or sharp agonizing pain in bladder; frequent urging to urinate, with burning pain on urinating; pus in the urine.

Diabetes Mellitus.—Gradual failure of health; frequent and excessive urination of pale urine, loaded with sugar; great thirst and emaciation; large appetite; constipation or exhausting diarrhœa; skin, mouth and throat dry; itching of skin; teeth decay; failure of sexual powers.

Jaundice.—Yellowishness of the skin, white of eyes, inside of mouth and of urine and feces; stools light colored; urine dark; may be itching of the skin; mental depression; delirium, convulsions, and stupor in bad cases.

Inflammation of Urethra. *Gonorrhea*.—Burning heat, tenderness and puffiness at entrance of urethra; catarrhal discharge, soon turning to thick, purulent matter; frequent, painful erections; urine passed in spurts, drops or twisted stream.

Dropsy of the Abdomen.—Sensation of weight in the abdomen; distention; difficult breathing; scanty urine; swelling of the feet; constipation; fluctuation of fluid on pressure.

Worms.

Worms.—Loss of appetite or ravenous hunger; disturbed sleep; great restlessness; picking at the nose; bad breath; lassitude; dark circles round eyes, indigestion; straining at stool; itching of anus; grinding of teeth in sleep; may be colicky pains.

Tape Worm.—May be no symptoms, or may be indigestion; mucous stools; colicky pains; voracious appetite; debility; night terrors; intense itching of nose and genitals; twitching of muscles; convulsions.

SKIN DISEASES

SKIN DISEASES.

THE skin is the soft and pliant membrane which covers the entire surface of the body. The interior, like the exterior is likewise covered by a skin, which, from its always being moist, is called a mucous membrane. At the various openings of the body, the outer and the inner skins are united, — forming one continuous skin, — like the same piece of silk turned over the border, and covering both the outside and inside of a bonnet.

From this continuity or oneness of the skin and mucous membrane springs an important medical law, namely, that a disease of the skin may spread to the mucous membrane, and a disease of the mucous membrane may spread to the skin. We see this illustrated by the breaking out around the lips which follow colds, and the itching of the nose of children when the mucous membrane of the bowel is irritated by worms.

The Skin is Composed of Two Layers.— These are separated from each other by the action of a blister. The thin portion which is raised up by the fluid of a blister is called the *scarf skin*, the *cuticle*, or the *epidermis*; that which remains in connection with the body is the *sensitive skin*, the *cutis*, the *derma*, or the *true skin*. The two skins have very different offices to perform. The scarf-skin is horny and insensible, and serves as a sheath to protect the more sensitive skin under it. Were the scarf-skin taken off, we could not bear to have anything touch us.

The *derma*, or *true skin*, and its glands, etc., are the seat of all the cutaneous diseases. These may be separated into four great divisions, — namely, diseases of the *true skin*, diseases of the *sweat glands and tubes*, diseases of the *oil glands and tubes*, and diseases of the *hairs and hair glands*.

Then the diseases of the true skin are divided into

Inflammation of the true skin;

Enlargement of the papillæ of the true skin;

Disorders of the vessels of the true skin;

Disorders of the sensibility of the true skin;

Disorders of the color-producing function of the true skin.

The inflammation of the true skin is conveniently divided into two groups, — namely,

Such as are marked by inflammation of the derma and mucous membranes, *with constitutional symptoms of a specific kind*, and

Such as are distinguished by inflammation of the derma, *without constitutional symptoms of a specific kind*.

Congestive Inflammation of the True Skin.

The First of these Groups,—those characterized by inflammation of the cutis, *with constitutional symptoms of a specific kind*,—embraces *measles, scarlet fever, varioloid, and cow-pox*.

Measles. — *Rubeola*.

MEASLES is an acute inflammation of the entire skin, both external and internal, associated with an infectious and contagious fever.

Symptoms.—The disease sets in with chills, succeeded by burning heat, listlessness, languor, drowsiness; pains in the head, back, and limbs; frequent pulse; soreness of the throat; thirst, nausea, vomiting, frequent dry cough and high-colored urine. These symptoms increase in violence for four days. On the third day the eyes become inflamed, cannot bear the light, and pour forth a profusion of tears. This last symptom is called *coryza*. The nose likewise discharges a large quantity of watery secretion, and sneezing is frequent. The larynx, windpipe, and bronchial tubes become inflamed, and hoarseness, soreness of the breast, etc., are the result.

The redness of the skin and breaking out appear about the fourth day, and produce heat and itching. This breaking out is characterized by a patchy redness, which, on close inspection, is found to consist of numberless minute red points and pimples, collected into patches in the shape of a half or quarter moon. They appear first on the forehead and front of the neck, then upon the cheeks and around the nose and mouth. On the fifth day they reach their height in this region, and then appear upon the body and arms, and on the sixth day, upon the legs. The color of the skin, when the inflammation is at its height, is *of a bright raspberry red*. The decline of the rash takes place in the same order in which it comes out. The redness fades on the sixth day upon the face; on the seventh, upon the body and limbs; on the eighth, upon the back of the hands. The coryza, the hoarseness, and the cough, decline about the seventh day, while a diarrhœa comes on about the eighth or tenth, — showing that the inflammation of the mucous membrane is subsiding. When the inflammation disappears, the whole scarf-skin peels off in the form of a scaly scurf. The artist has given a good picture of the disease in the beautifully colored lithograph, PLATE I, Fig. 1.

Treatment.—When the disease is mild and regular in its course, scarcely anything will be required, except mild diet, slightly acid drinks, with flax-seed tea, slippery elm, or some equivalent, to quiet the cough. Sponging with tepid water, if done with frequency, moderates the fever, and adds to the comfort of the patient. If the fever

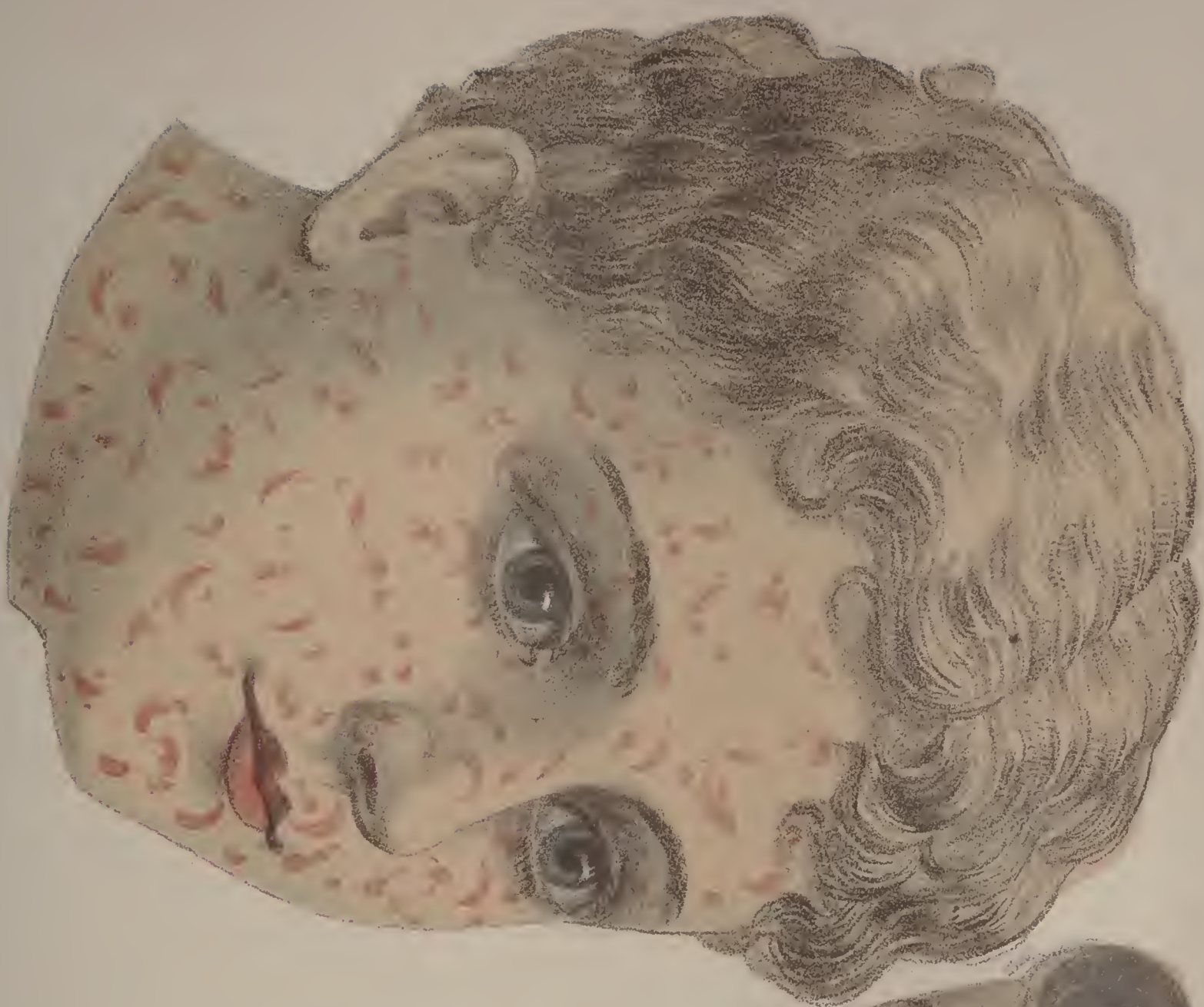


Fig. 1.



Fig. 2.

runs high, take half an ounce of rochelle salt, and use recipe 125. Should the eruption "strike in," apply leeches or cups over the internal organ affected, if any, and recall the rash by sweating.

Those who have been exposed to the contagion, and are liable to have the disease, should avoid all unnecessary exposure to wet or cold, — keeping the feet warm and dry, and the whole body well clad. With these precautions, and a mild, unstimulating diet, much of the force of the disease may be broken.

During the first stages of the disease if the onset has not been stormy nothing further will be necessary than the precautions already advised. Should, however, the rash be delayed or appear in patches over the body, the patient should be given a full bath of either hot water or hot water with the addition of mustard in the proportion of two teaspoonfuls to the gallon. The employment of hot drinks should be limited to saffron tea or hot lemonade, as we use care not to add to the existing high fever which usually is present when the eruption is slow in appearing.

Besides the milder forms of the disease, cases occur, chiefly in broken-down constitutions, in which the rash delays its coming out till the seventh day, and is then mingled with dark and livid spots, which remain, often, for ten or twelve days. The fever is of a low, typhoid kind, and the patient is extremely weak and languid.

In this condition of things, the patient must be supported by tonics (77 and 59), and whisky, and expectoration promoted by some appropriate remedy, if required.

If at any stage of the disease there should be fixed pain in any part of the chest, which is made worse by coughing, or by taking a full breath, we may conclude there is some inflammation of the chest.

The seriousness of this complication will be understood from the fact that the bronchitis has now extended and small patches of inflammation known as broncho-pneumonia have appeared. Medicines to enable the patient to raise the phlegm easier, such as five grains of chloride of ammonia in two tablespoonfuls of sweetened water or simple syrup may be given every three hours, and 1-80 of a grain of sulphate of strychnia to support the heart, in addition to the other treatment given under the heading "broncho-pneumonia."

Scarlet Fever. — *Scarlatina*.

THIS is likewise an acute inflammation of the entire covering of the body, both external and internal, connected with fever which is infectious and contagious.

Symptoms.— The fever comes on somewhere between the second and tenth day after exposure. On the second day of the fever, the eruption comes out in the form of very small points and pimples, which appear either in patches, or constitute a general redness, *of a bright scarlet color*. In PLATE I, Fig. 2, the artist has given a fine picture of the disease.

The disease begins with languor, pains in the head, back, and limbs, with drowsiness, nausea, and chills ; and these are followed by heat, thirst, etc. When the redness appears, the pulse is quick, and the patient is anxious, restless, and sometimes delirious. The eyes are red, the face swollen, the tongue covered in the middle with white mucus, and is studded with elevated points of extreme redness. The tonsils are swelled, and the throat red. The greatest degree of redness is reached on the evening of the third or fourth day from its beginning, when a gentle moisture appears, the disease begins to decline, with itching, and the scarf-skin falls off in branny scales.

A swelling or puffiness of the flesh, which spreads out the fingers in a singular manner, seems to be peculiar to scarlet fever.

In the first stage of the complaint, the tongue, as stated above, is covered with a fur ; but as it advances, the tongue often becomes suddenly clean, and presents a glossy, fiery-red surface, which is sometimes, with the whole lining of the mouth, raw and tender.

It is peculiar in this complaint, that the inflammation of the throat always runs into a state of ulceration. As far as can be seen, on pressing down the tongue, the throat is swollen and of a deep, florid red ; and on the tonsils may be seen white or gray ulcers. This makes swallowing very difficult, and aggravates the sufferings of the patient. The great amount of mucus in these parts causes also a continual rattling in the throat.

In quite a large number of cases of this disease the usual ulceration of the throat is replaced by an attack of true diphtheria, which, if at all severe, will require the giving of antitoxin of diphtheria in addition to the treatment recommended for scarlet fever.

The eustachian tube, which extends up to the ear, is apt to get involved in the inflammation, and cause swelling and pain in that region. The glands under the ear and jaw sometimes inflame, and after a time they occasionally break. Abscesses formed in the ear frequently produce some deafness which is not easily cured.



FIG. 72.

In the cell-dropsy, which sometimes appears after scarlet fever, the crystals of urate of ammonia may often be found in the urine with the microscope (Fig. 72).

This disease resembles measles, but may be distinguished from it by the absence of cough ; by the eruption being *finer*, and of a more *scarlet color* (see plate) ; by the rash coming out on the *second* day instead of the *fourth* ; and by the ulceration in the throat.

Treatment. — In ordinary cases, the treatment should be very simple. The apartment should be kept cool, and the bed-covering light. *The whole body should be sponged with cool water as often as it is hot and dry*, and the patient be permitted to take cooling drinks. Besides this, in many cases, very little is needed, except to give a few drops of the tincture of belladonna, night and morning.

The cold stage having passed, and the fever set in, warm water may be used without the mustard, etc. If the head be affected, put mustard drafts upon the feet. Should the bowels be costive, they may be gently opened by some very mild physic.

No solid food should be allowed; but after the first shock of the disease is passed, drinks, in reasonable quantities, will be advisable,—such as cold water, lemonade, barberry and tamarind water, rice water, balm or flax-seed tea, and some thin water-gruel.

To promote the action of the skin, the spirits of nitre, with other articles (125), adapting the dose to a child, will be found useful.

Muriatic acid, forty-five drops in a tumbler filled with water, and sweetened, and given to a child in teaspoonful doses, is a good remedy.

In very violent attacks, the system sometimes inclines to sink immediately; typhoid symptoms show themselves; there is great prostration; the eruption strikes in; the skin changes to a purple or mahogany color; the tongue is of a deep red, or has a dark-brown fur upon it, and the ulcers in the throat become putrid. This is called scarlatina maligna; but it is only a severer form of the same disease.

The treatment of this form must be different from that recommended above. It must be *tonic*. Quinia (65) must be freely given. Wine whey, mixed with toast-water, will be useful. Tincture of cayenne, in sweetened water, may be given often in small doses. Ammonia (135) may likewise be given as a stimulus. Gargles (245) (244) (243) are also required.

A dropsical affection is one of the most frequent results of scarlet fever. It is believed that this seldom occurs, if the warm bath is daily used, as soon as the skin begins to peel off. After the dropsy has set in, give the warm bath twice a week, and encourage perspiration by the compound tincture of Virginia snake-root, and similar articles.

In young children, also in severe cases of fever or where the kidneys are not working properly as shown by swelling of the face, abdomen and extremities, milk should be the only article of diet allowed until these symptoms have quieted down. Should the stomach reject the milk, you may add lime water, a teaspoonful to a tumbler of milk. From one pint to two quarts of milk according to age will maintain the nourishment of anyone over days and weeks at a time and gradually the different broths, as chicken or lamb and beef tea, may be added, and later bread and butter, boiled custard, rice and tapioca puddings.

Anointing the skin with vaseline at night and washing off in the morning with suds removes the poisonous scales, and lessens the danger of contagion, as well as improves the activity of the skin. Nasal and aural catarrhal diseases are commonly observed to follow scarlet fever and need attention of a physician. Rheumatism likewise is a frequent sequela, while nephritis or inflammation of the kidneys is often a sad reminder of the disease. These two complications are to be treated as directed elsewhere.

TABLE EXHIBITING THE DIFFERENCE BETWEEN SMALL-POX, VARIOLOID, SCARLET FEVER AND MEASLES.

SMALL-POX.

First. Period between exposure and when disease first shows itself is from five to twenty days — usually shows itself in ten or twelve days.

Second. The fever and temperature is high, but is less after rash appears.

Third. The rash appears on third or fourth day and is seen on the forehead or some part of face.

Fourth. The eruption first consists of pimples, then watery blisters which become white and sink in the center.

Fifth. The tongue is coated and swollen.

Sixth. The eyes do not run, and bronchitis does not appear.

Seventh. Sore throat is often present but not to as great an extent as in Scarlet Fever. Delirium and convulsions may occur.

Eighth. Secondary fever appears after several days.

Ninth. There are apt to be pocks and the eyesight be weakened, but by modern treatment it can usually be avoided.

SCARLET FEVER.

First. Period between contagion and when disease first shows itself is usually from three to six days, but may be much longer.

Second. Fever greatly increased and continues without abatement after eruption appears.

Third. Eruption makes its appearance on second day on the chest and neck and spreads over the body during the next twelve hours.

Fourth. The eruption extends over the entire skin.

Fifth. Eruption lasts from six to seven days when it begins to come off in large scales.

Sixth. Tongue is covered with little red points.

Seventh. There is little trouble with bronchitis or running of eyes.

Eighth. Sore throat.

Ninth. The mind is apt to be affected and there may be delirium.

Tenth. Usually no secondary fever.

Eleventh. In Scarlet Fever there is great danger of the patient being left with kidney trouble, or the eyes, ears, or throat may be affected.

VARIOLOID.

First. Period of incubation more irregular than Small-Pox — from five to twenty days — averages twelve days.

Second. Fever high till rash is well developed and then a greater improvement than in Small-Pox.

Third. Eruption appears on third or fourth day.

Fourth. Rash consists of pimples, may go on to pustules and blisters, but usually subside before advancing so far.

Fifth. Tongue coated and swollen.

Sixth. No nose or eye symptoms as a rule.

Seventh. Sore throat mild. Delirium and severity of disease often marked at beginning but quickly subside.

Eighth. Secondary fever less marked than in Small-Pox.

Ninth. Instead of rapidly convalescing, the patient often shows an amount of weakness and anæmia all out of proportion to preceding symptoms.

MEASLES.

First. Period between exposure and when disease first shows itself is from seven to fifteen days.

Second. There is a moderate fever. It does not decrease but increases after eruption.

Third. Eruption appears on fourth day on face and spreads over rest of body in about two days.

Fourth. Eruption is crescent-shaped, rest of skin healthy.

Fifth. Eruption lasts about five days, then peels off in scales.

Sixth. Tongue has red edges and is coated.

Seventh. The nose and eyes run and bronchitis is usually apparent.

Eighth. Usually throat is not sore.

Ninth. The mind is not affected.

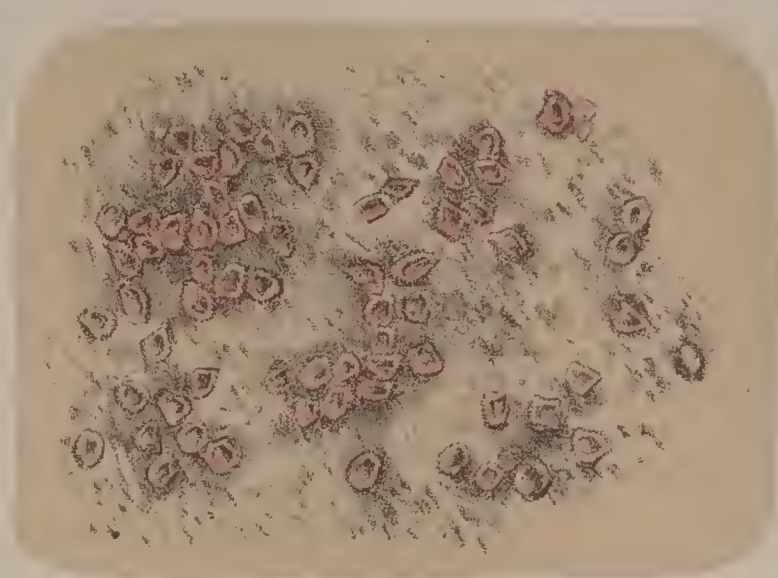
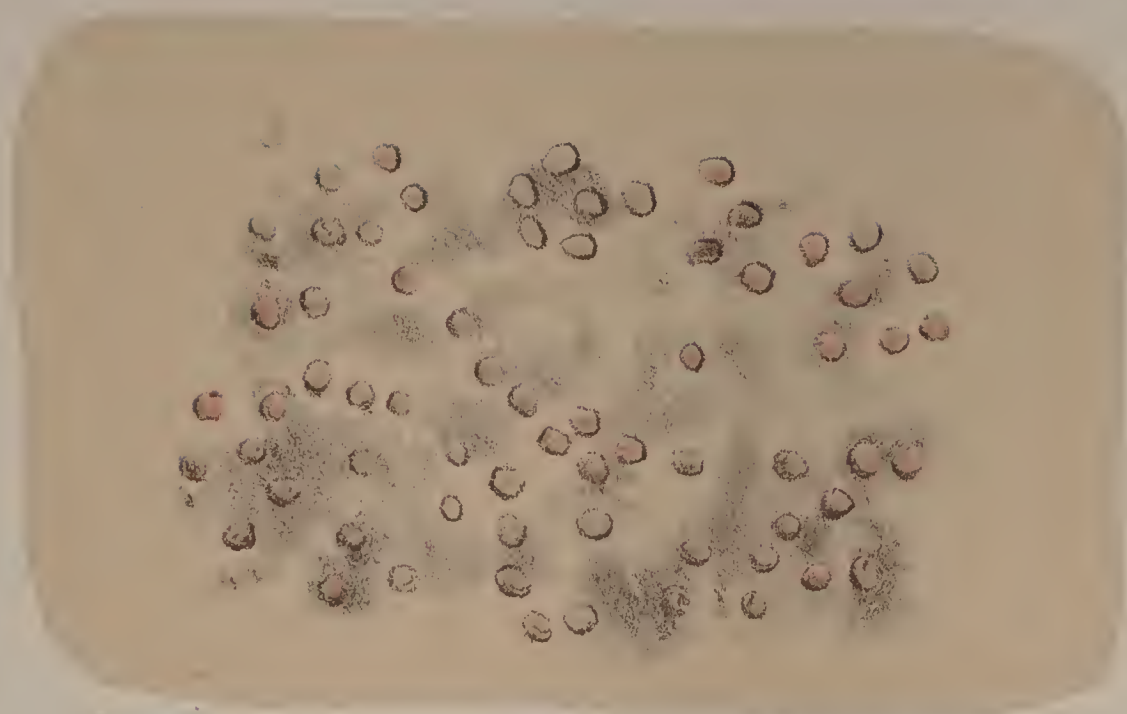
Tenth. The fever subsides after the third day and there is no secondary fever.

Eleventh. The patient's eyes may be inflamed and consumption or bronchitis follow.

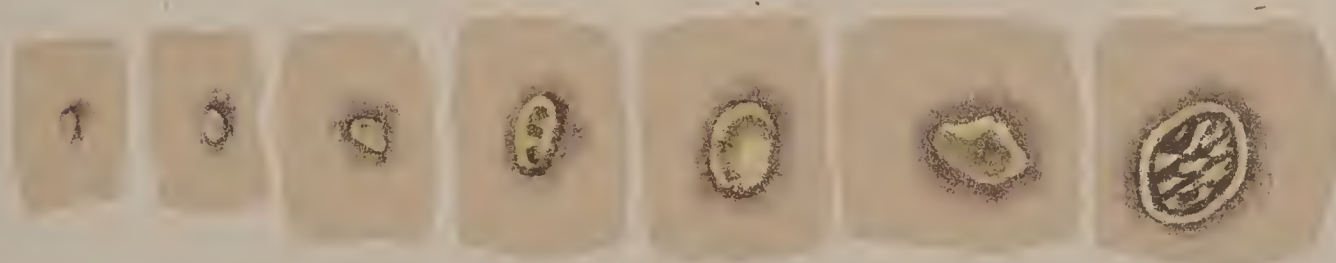
Small-Pox. — Variola.

THIS is another disease characterized by acute inflammation of the entire skin, both external and internal, connected with infectious and contagious fever. The eruption has the form of red points, which soon become pimples, then vesicles, then flattened and scooped-out vesicles, then pustules, and finally hard brown scabs. These last fall off from the eleventh to the twenty-fifth day, and leave behind them small pits and scars. The fever is remittent, and precedes the eruption some three or four days, — ceasing when the eruption is developed, and returning when it has reached its height. The period between exposure and the attack of the disease, called *incubation*, is from five or six to twenty days, — being short in the severe cases, and longer in the milder ones.

Symptoms. — The disease begins with languor and lassitude, with shivering, and pains in the head and loins; with hot skin, and quickened pulse and breathing; with thirst, loss of appetite, and furred tongue; with nausea, vomiting, constipation, restlessness, and uni-



*Progress of
Small Pox.*



1st day. 2nd day. 3rd day. 5th day. 8th day. 14th day. 17th day.

*Progress of
Varioloid.*



1st day. 2nd day. 3rd day. 4th day. 8th day. 10th day.

*Progress of
Vaccination.*



4th day. 6th day. 8th day. 11th day.

versal prostration. To these symptoms sometimes succeed difficult breathing, cough, drowsiness, and even insensibility. The tongue, white at first, soon becomes red at the point, and over the whole surface. The fever is highest during the night. The constitutional symptoms are more violent just before the eruption, but immediately subside, and soon disappear, when the breaking out is established. The eruption is at first in the shape of small red points, which are *hard* to the touch, and shaped like a cone, and are proportionate in number to the subsequent pustules. In PLATE II the artist has well exhibited the developed disease, as well as the progress of the eruption from day to day.

Treatment. — Like the two preceding diseases, the ordinary, uncomplicated form of this requires only the most simple treatment. Not much is wanted, except confinement in bed, cooling drinks, cool and even temperature, frequent change of linen, and sponging the body with cool water. But when what is called the fever of invasion is past, and the eruption is *fully developed*, and has brought along with it the *secondary fever*, then some recipe, as (131), (355), (125) will be in place, and some gentle laxative to keep the bowels open (8), — also gentle injections (249), and opiates to relieve sleeplessness and nervous symptoms; (356) (357) may be used if very sleepless.

Should the system, at this period, appear to be sinking, a more generous diet, and a little wine may be allowed. If the brain suffers, apply cold ice-cloths to head, or an ice-bag behind the ears, and put the feet in a mustard bath (242). If the breaking out appears with difficulty, put the patient into a warm bath, and give extract of jaborandi (358). Gargles will frequently be needed for the inflammation, and dryness of the mouth and throat (243). Cold sponging may be considered as highly beneficial, in both the primary and secondary fever. The belladonna likewise is a useful remedy, used in the same way as in scarlet fever. The plaster (288), applied to the face, will, it is said, arrest the formation of matter, and prevent the unsightly scars which so often cover the face of persons who have suffered from small-pox. Paint the face once or twice a day with glycerine, which will effectually prevent pitting. The use of flexible collodion is better.

To avoid Pitting, and the occurrence of unsightly scars of the face, several methods of dressing have been used. The simplest consists in covering in the vesicle with iodoform-collodion, say, twenty grains of the former to one ounce of the latter. Having pricked the vesicle with an absolutely clean needle, one, for instance, that has been boiled in soda-water for five minutes, a layer of this collodion should be applied and allowed to dry on at once. Should pus form under this coating it must be released by washing off the collodion with alcohol. The wound is then to be thoroughly disin-

fectured with carbolic acid water (one teaspoonful to pint of water) and the collodion again applied.

This process will avoid most of the pitting.

Varioloid.—*Mild Small-Pox.*

VARIOLOID, or modified small-pox, begins with symptoms similar to those of small-pox, but much milder in degree. These symptoms are feverishness, nausea, vomiting, pains in the loins and head, and a quickened pulse. The eruption comes out on the third or fourth day, and looks like that of small-pox. It reaches its height the fourth or fifth day, and then declines without any secondary fever. The pustules dry up and form brown scabs which fall off in a few days, and leave slight pits, and a few red or purple spots.

Chicken Pox.—*Varicella.*

CHICKEN-POX is a contagious disease, associated with mild fever and a blister-like eruption called blebs over the body.

Symptoms.—The disease appears usually from two to three weeks after exposure of the child to some one else similarly affected. At first a mild fever and feeling of tiredness causes the patient to stay indoors, though intense pain in the head, back and legs with high temperature, vomiting and even delirium are not uncommon.

The eruption usually appears in one to three days and are small, watery blisters averaging one-eighth of an inch in size. They are more numerous over the chest and trunk, occasionally over the face and forehead and even in the roof of the mouth. They do not have the so-called shotty feeling when pressed to the bursting point under the finger as in smallpox, neither is the red blush around them so marked.

Unless scratched by the finger nails or a very severe case, very few scars will remain.

Treatment.—The treatment is practically a mild diet for a few days, keeping the patient indoors to avoid exposure to cold or wet and some simple medicine as sweet spirits of nitre in dose of half a teaspoonful in water every three hours to allay fever and keep the kidneys working properly.

Cow-Pox. — *Vaccina.*

THIS disease exists to some extent among lower animals, and is identical with small-pox in man. The immortal Jenner taught the world that the pus taken from the cow having this disease, and introduced under the skin of man, would produce an eruption similar to that of small-pox, and that this would protect the system from the latter disease. This was an immensely important discovery, and will render the name of Jenner famous through all time.

Before this discovery smallpox killed in England as many persons

ERYSIPELAS

Pl. 3

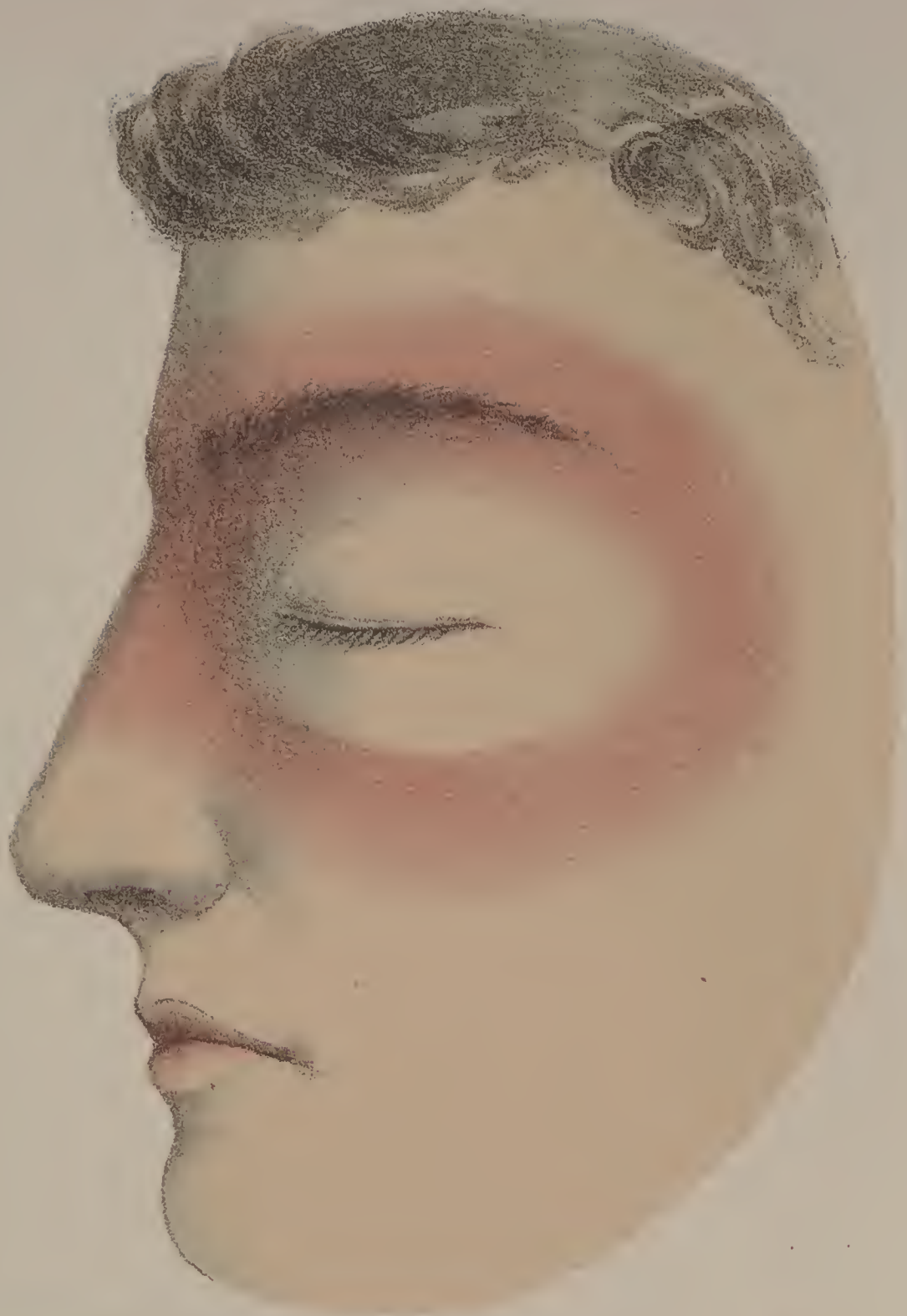


Fig.1.

INFLAMMATORY BLUSH

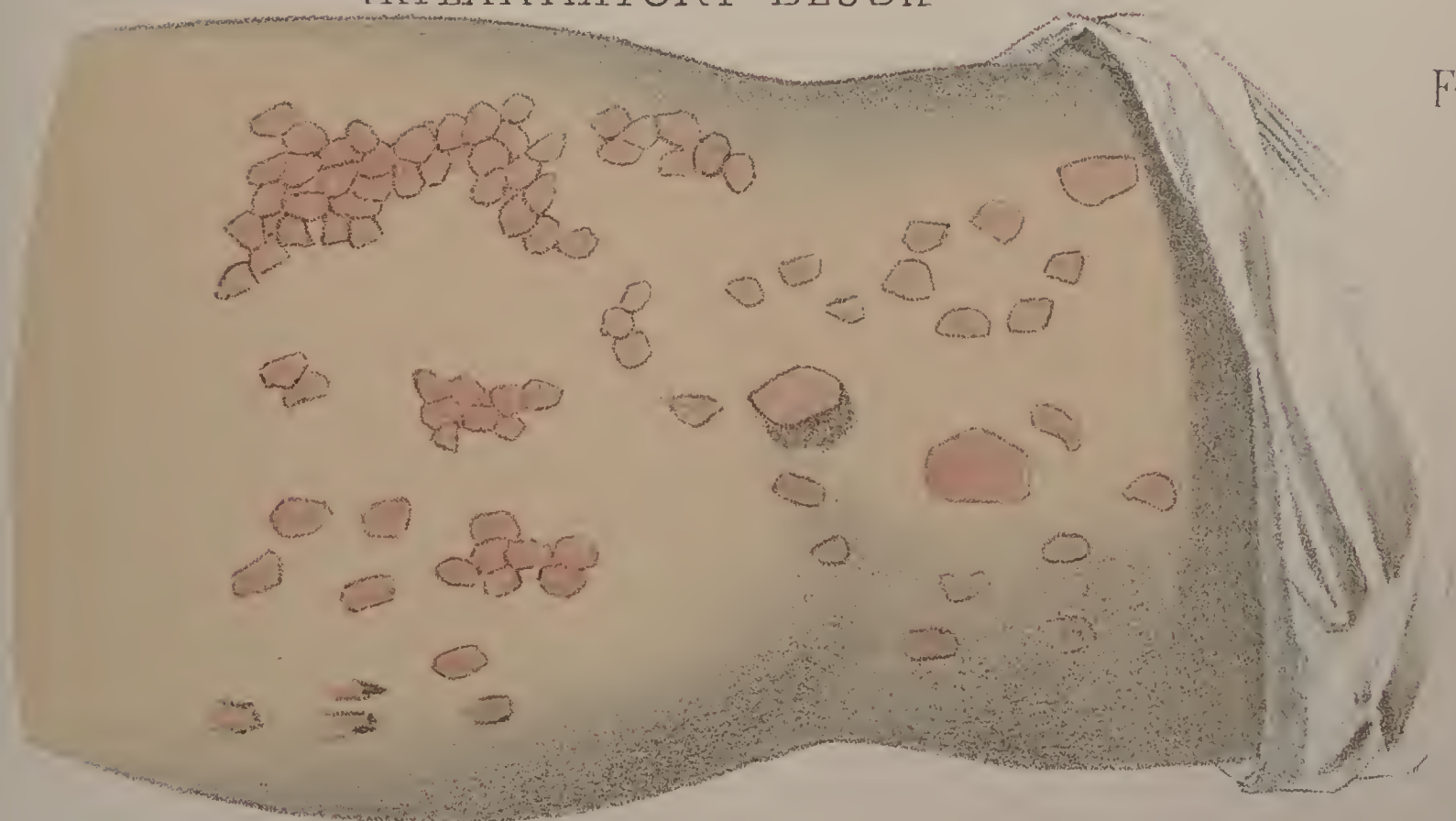


Fig.2.

as all other diseases combined. To-day, if a person has even been vaccinated once in their life the chance of death is only thirty out of one hundred, while if never vaccinated about sixty per cent. die. If vaccinated and the "scar" is plain, not over eight per cent. die.

It is usually a wise precaution to be revaccinated once in eight years, especially if an epidemic of smallpox appears.

The Second Group of diseases, characterized by inflammation of the true skin, *without constitutional symptoms of a specific kind*, are Erysipelas, Nettle-Rash, False-Measles, and Inflammatory Blush.

Erysipelas. — *St. Anthony's Fire.*

ERYSIPELAS is a diffused inflammation of the skin, affecting only a part of the surface of the body, and is accompanied by a fever, which is generally thought to be infectious and contagious. The local inflammation is disposed to spread; it extends deep, and is attended by swelling, a tingling, burning, and pungent heat, and by a redness, which disappears when the skin is pressed by the finger, and returns on remitting the pressure.

Symptoms. — The constitutional symptoms are chilliness and shaking, succeeded by heat; lowness of spirits, lassitude, pains in the back and limbs, pains in the head, quick and hard pulse, thirst, loss of appetite, white and coated tongue, bitterness of mouth, nausea, vomiting, pain in stomach, and costiveness.

These symptoms go before the local inflammation several days; they increase with the redness of the skin, and disappear upon its decline. The nervous system is sometimes severely affected, and indicated by low, muttering delirium. At the close of the inflammation there is generally a relaxation of the bowels, and the scarf-skin peels off. Sometimes matter forms under the skin, and occasionally mortification occurs. The face is the most frequent seat of the disease. It commonly begins on one side of the nose, and soon spreads over one side of the face, closing up the eye, and changing the features in a shocking manner. See PLATE III, Fig. 1.

Somewhere about the third, fourth, or fifth day, very minute blisters appear on the inflamed parts, filled with water, which increases until the blisters break and let it out. The disease comes to a head on the eighth or ninth day, when the blistered parts dry, and the skin begins to peel off.

Treatment. — In the treatment two things are to be done, — to subdue the fever, and the local inflammation. The fever is assuaged by rest, mild diet, gentle laxatives (26), (21), (125); and by the use of tincture of veratrum. For the local inflammation, various things have been advised, but nitrate of silver, on the whole, has the preference. First wash the inflamed part with soap and water to remove any oily substance, and wipe the skin dry. A solution of nitrate of silver will in many cases, according to Dr. Higginbottom,

do even better. Use a solution of 80 grains of silver nitrate to half an ounce of water that has been boiled and then cooled. Apply with a camel's hair brush over the entire inflamed area and for a small space beyond.

Apply two or three times to secure a firm coating but use carefully to avoid sloughing. A perhaps better remedy than any is to apply after washing with water and castile soap, a thick coating of ichthyol with vaseline equal parts. Cover this application with oil paper or absorbent cotton as it will stain the clothes.

In mild cases, flour may be dusted on the inflamed part from the dredging-box. Warm fomentations are also useful, and cloths wet with water, and laid on. A solution of perchloride of iron, applied to the inflamed skin, is much used now, or water as hot as can be borne.

In erysipelas the powers of the system are generally reduced, and tonics, such as quinine, wine, etc., are generally required. Dr. Robert Williams, — high authority in these matters, — says he puts his patients upon milk diet, gently opens the bowels, and gives them, daily, from four to six ounces of port wine, together with sago, and that he seldom has to change this course, whatever the symptoms.

For the inflamed skin, a tea made of buckwheat meal is a good wash. Alcohol and water, or new rum, may be used for the same purpose.

Nettle-Rash. — *Urticaria*.

NETTLE-RASH begins with fever, which lasts two or three days, when wheals of various shapes, round, oval, and oblong, appear in the midst of red, slightly elevated patches, attended by great itching and tingling, as if the common nettle had been applied to the skin. The wheals go off during the day, and come again at night. The eruption is often a symptom of other diseases, or of mental anxiety. Sometimes it is the effect of articles of diet. Children have it occasionally while cutting teeth. A lighter form of the disease exists, in which the wheals appear and disappear at short intervals, according to the heat of the weather, the exercise, diet, etc.

Treatment.— The treatment varies according to the cause of the disease. If this be anything offending the stomach, especially if it be putrid fish, an emetic (2), (4) will be required, followed by brisk physic (359). After which take a few doses of quinine (75). For external application, the lotion (216) or common vinegar and water (215) will be useful. Dr. Wilson recommends corrosive sublimate, etc. (217), as the best lotion to apply outwardly. Soda bath better.

The diet should be simple and cooling, all stimulating food and condiments being avoided. Fruit, candies, and berries often the cause.

Rose-Rash.—*Roseola*. — *False Measles*.

Symptoms.— The summer rose-rash appears first on the arms, face, and neck, thence it spreads over the whole body, producing tingling and itching. It is usually preceded by the symptoms of fever-chills, succeeded by flushes of heat, languor, pains in the head, back, and limbs, restlessness, quick pulse, and thirst. The rash appears in small irregular patches, paler than those of measles, and of a more roseate hue. There is some hoarseness from inflammation of the throat. The rash never continues more than five days, unless it be merely partial, in which case it sometimes comes and goes at intervals for weeks. If it “strike in,” it generally produces disturbance of the stomach, headache, and faintness, which are relieved by its reappearance.

The autumnal rose rash is in more distinct patches than the former, of a circular figure, slightly elevated, and of a dark damask-rose hue. Seldom any fever, or itching and tingling.

Treatment.— For the first-described form of the disease, light diet, acid drinks, and gentle laxatives; for the second, recipe 59 or 51, according to convenience.

Inflammatory Blush. — *Erythema*.

WHAT is called marginated inflammatory blush, is a mottled, red, smooth fullness of the skin, occurring on the extremities and loins, in irregular patches, bounded on one side by a hard, elevated, red border. This species of disease attacks old people, and indicates some internal disorder, which is dangerous.

Another form of the complaint appears on the arms, neck, and breast, in extensive, bright-red, irregular patches, slightly elevated. The redness, at its height, is very vivid, and continues about a fortnight, when it assumes a purplish hue in the centre.

Treatment.— Light diet, gentle purgatives (21), soda bath to allay the tingling and secure sleep, and the mineral acids (63), with bitter tonics, comprise all that is required, except sponging with water, and friction.

Watery Pimples.

WE now come to a class of diseases characterized by watery pimples. Wilson says they are distinguished by “effusive inflammation of the derma,” which means that there is inflammation of the true skin, which causes water to be poured out on top of the derma, and underneath the scarf-skin, causing the latter to be lifted up in the form of small or large blisters, or vesicles. At first the fluid in these pimples is transparent, but in a short time becomes milky. Sometimes this fluid absorbs; at other times, it dries up, and with the cuticle scales off as scurf.

Eczema and Salt Rheum.

ECZEMA is an inflammatory, acute or chronic, non-contagious skin disease characterized at first by redness, little pimples, vesicles or pustules and is attended by more or less burning itching. This process terminates either in the formation of crusts as the result of dried sticky serum, or else in the formation of fine scales.

No skin disease has such a variety of aspects nor such grades of inflammation. There is generally more or less oozing of the blood-serum, which dries and thickens, forming crusts. There is usually more or less thickening of the skin, making it like leather; there is generally some considerable scaling.

Eczema may subside in a few weeks never to return, or, what is more probable, may lapse into a chronic state and continue for months and years, with bothersome symptoms, which are extremely annoying.

Salt Rheum is a chronic eczema of this last variety.

Treatment.— In the acute stage of eczema, soothing lotions, powders, or ointments should be used, such as 372, 373, 374. Some are better treated with powders, some by lotions; the itching and heat are best relieved by 373.

In the more chronic variety some stimulating ointments are needed, like 375. Carbolic acid, 10 or 15 grains to the ounce of oleate of zinc ointment, is an admirable remedy for the itching and burning. Salicylic acid, 10 grains to the ounce of benzoated zinc ointment is likewise very serviceable, while tarry preparations generally are the most satisfactory in this chronic stage.

No skin disease, however, is often so stubborn to treatment as the different forms of eczema. The cure often will be slow and medicines frequently changed. The local varieties of eczema require special treatment.

Eczema of Head in Children.— After oiling freely the crusts over night and washing off with suds in the morning, apply Salicylic acid, 1 part, tincture benzoin, 2 parts, vaseline, 50 parts. The very chronic, thick, and indurated skins require 360, and in many cases 219, especially the chronic hand-cracks. The diet must be free from irritating articles of food, the bowels regulated and the hygiene of the skin attended to, while tonics and general systemic measures are often called for.

Tetter — Shingles.— Herpes.

AFTER a slight feverish attack, lasting two or three days, clusters of small, transparent pimples, filled sometimes with a colorless, sometimes with a brownish lymph, appear on the cheeks or forehead, or on the extremities, — and at times on the body. The pimples are a little larger than in eczema, — about the size of a pea. After a few

days the vesicles break, pour out their fluid, and form brown or yellow crusts, which fall off about the tenth day, leaving the surface red and irritable. The eruption is attended with heat, itching, tingling, fever and restlessness, especially at night. Ringworm is a curious form of herpes, in which the inflamed patches assume the form of a ring. Shingles usually attack the aged about the ribs of one side, and are evidences of impaired health and nutrition. They are very prostrating and require tonics from the start.

Treatment.— Light diet, gentle laxatives. If the patient be advanced in life, and feeble, a tonic (75) will be desirable. For external application, belladonna (173), or an ointment of sulphuret of lime, (174), or elder-flower ointment, etc. (175). Equal parts of chloral and camphor applied several times a day, especially later in the disease (361), give most relief.

Itch.— *Scabies.*

To this disease all classes are liable, though it is much less common than in former years. It is found frequently among the poor, whose condition in life does not give them the means to guard at all points against it; but it is most common among such as neglect personal cleanliness.

Symptoms.— An eruption of distinct, cone-like, watery pimples, which are transparent at the summits, and are accompanied by an excessive itching, which is made worse by high-seasoned food, by drinking liquor, and by the heat of the bed. When these pimples are scratched and torn, a sticky, watery fluid is poured out, which forms small scabs; and, in time, if the disease is not cured, these scabs being torn off, extensive sores are made.

Cause.— It will excite the wonder of many readers to state that animals of so small a size as scarcely to be seen with the naked eye exist in the skin of man. Yet such is the fact; and it is the presence of these minute creatures, or the effect of their presence, which constitutes the disease called itch. The little creature (*acarus scabiei*, by name), a species of *mite*, is one seventy-seventh part of an inch in length; and when closely inspected under the microscope, is really a beautiful, I may say an elegant, animal. Here are a front, a side, and a back view of him, well done by the artist.

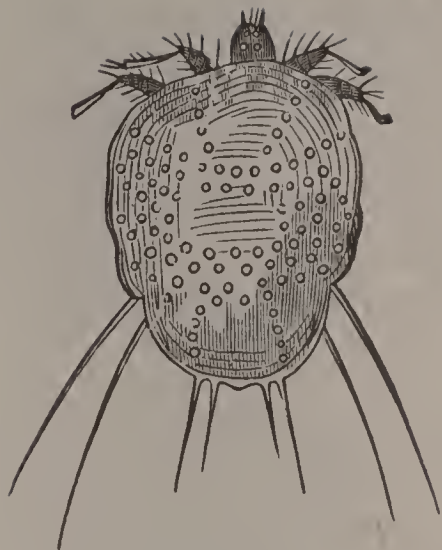


FIG. 73.

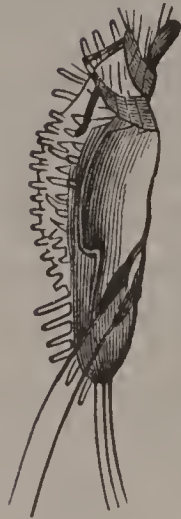


FIG. 74.

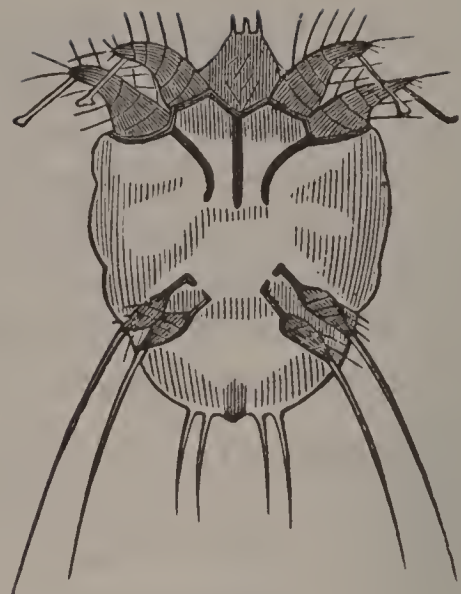


FIG. 75.

His Method of Attack.— When placed upon the skin, the little fellow, like the squirrel and other ground-animals, sets himself to make a hole through the scarf-skin with his head and fore feet. Into this he pushes his whole body. He then begins to burrow himself in the derma or true skin — making a channel many times his own length, at the end excavating a chamber where he sleeps, and whence he goes out to do his day's work at mining, or boring for food. When tired of this sleeping apartment, he digs onward and scoops out another.

This travelling, and boring, and turning about in an organ as sensitive as the true skin, must, of course, occasion a tickling and *itching*; and from this circumstance the disease took its name of *itch*. But this itching is not painful. James the First is said to have remarked that the itch was fitted only for kings — so exquisite is the enjoyment of scratching. Probably it is a royal luxury. Be that as it may, most persons would consent to have it all done by royal fingers. They have been used for meaner purposes.

Treatment.— Whatever will kill the little animal described above, will cure the itch. Various agents have been employed for this purpose, but none have been found equal to sulphur. The compound sulphur ointment is a sovereign remedy for the disease. Four ounces of this should be well rubbed into the skin, before the fire, morning and evening, for three or four days. This will put an end to the whole colony of these sovereign squatters upon forbidden soil.

Two ounces of sulphuret of potash, and the same amount of soft-soap, dissolved in a pint of water, and applied well to the skin, is used in many cases with good effect.

Caustic potash, one part to twelve parts of water, applied in a similar way, is said to be a pretty sure remedy.

A solution of the chloride of lime, used as a wash, will often effect a cure.

The ointment of the American hellebore sometimes does well.

Before applying any of these preparations, let the skin be washed with warm water and soap, and well dried. Be sure the parasite is

killed before ceasing treatment. Best to continue few days longer than what is apparently needed.

Rupia.

THIS is from a Greek word which means dirt, from the dirt-colored crusts which are formed after the breaking of the large watery pimples. The vesicles are like those of eczema and herpes, except that they are *larger*. This is distinguished from all other skin diseases by the formation of unhealthy, foul, and burrowing sores, which pour out a reddish matter in such quantities that it collects and dries upon the sore, and forms a crust of great thickness, — sometimes of the size of an oyster-shell. Rupia has its origin in a weakly and debilitated constitution, and cannot be cured without renovating the whole system. It is a manifestation either of syphilis or lupus.

Treatment.— Warm baths once or twice a week, with generous and nutritious diet. Tonic medicines (63) (51) (67) (61) (65) will be required. For external treatment, dust the surface of the ulcers with cream of tartar, or apply nitrate of silver (214) (219) (220), white vitrol, etc. See syphilis.

Pemphigus. — Pompholix.

THE first of these terms is from the Greek, and means a *bubble*; the second, pompholix, is from the same language, and means a *water-bubble*. This is still more applicable to the disease in hand, which consists, in fact, in the raising up of the scarf-skin in the shape of bubbles, containing a watery fluid. These bubbles are just like common blisters. They vary from the size of a split pea to that of a hen's egg. They rise up very rapidly, and break in two or three days, leaving a raw surface which soon becomes covered by a thin crust.

Treatment.— Similar to that for Rupia, with the addition of iodide of potassium (140), and applying the stick nitrate of silver to the whole surface of the ulcer, and a short distance beyond it on all sides, or the ointment (176). See treatment for syphilis.

Mattery Pimples.

ANOTHER natural group of skin diseases are distinguished by an eruption of pimples, filled, not with water, like those just described, but with matter. The pimples of this class are not transparent, or whitish, but *opaque* and *yellow* from the first. The matter is poured out upon the true skin, and raises up the scarf-skin, in the same way as the watery pimples. As in the preceding diseases, too, the drying up of the matter forms crusts. But these pimples are never so small as those of eczema, nor so large as those of pemphigus.

Crusted Tetter. — *Impetigo*.

THIS eruption consists at first of slightly-elevated pustules or pimples, closely congregated, with an inflamed border. These break, and the surface becomes red, excoriated, shining and full of pores, through which a thin, unhealthy fluid is poured out, which gradually hardens into dark, yellowish-green scabs. These scabs sometimes look like a dab of honey dried upon the skin. This has given impetigo the name of "honey disease," or honey scab. This honeyed look is well represented in the crusts which form on the lips and ears of children. Sometimes these scabs cover nearly the whole face, and are called the milk crust. This is putting the agreeable words *milk* and *honey* to rather questionable uses! When this crusted tetter invades the head or scalp, it causes the hair to fall, and becomes what is called a *scall*. Impetigo may be simple, or contagious, or syphilitic.

Treatment.— The vapor bath, and water dressing. The following ointments are useful: oxide of zinc, white precipitate, or diluted nitrate of mercury (178). Hydrocyanic acid (221), applied externally, has a fine effect. The crusts should first be removed by a weak lye made from hard-wood ashes, or potash; then, after applying one of the ointments above, or the lotion, cover the part with oil-skin. If the crusts are on the head, the hair should be cropped off before the remedies are applied. When of syphilitic origin, treat as for that disease.

Papulous Scall. — *Ecthyma*.

THE mattery pimple called ecthyma is developed on a highly inflamed skin. The bladders are about the size of a split pea, and are surrounded by a broad ring of redness. They are generally separate, not clustered like impetigo. They are scattered over various parts of the body, and are followed either by a hard black crust, or by a sore. The disease is either acute or chronic. The latter attacks weakly children, and persons reduced by sickness or low living.

Treatment.— For the acute form, give a generous diet, with ointment (176), and the cold sponge-bath on the sound parts. Use (176) (175) (214) (211) for external application. Hygienic treatment, tonics, and stimulants are called for; iron, quinine, arsenic, and nux vomica.

Scaly Eruptions.

THE scaly eruption is called a dry tetter. It is an inflammation of the true skin, and is distinguished from the rashes and pimples by the alteration of the scarf-skin. The diseases forming this group are three in number,—*lepra*, *psoriasis*, and *pityriasis*.

Leprosy. — *Lepra*.

IN this disease, the eruption makes its appearance as a small, salmon-red spot, raised a little above the surrounding skin, and constituting, in fact, a flat pimple, almost as large at the top as at the bottom. On top of this pimple the scarf-skin becomes rough, and after a little while a thin scale is produced. New layers are added to its under surface, and it accordingly grows thicker. It has a bright, silvery lustre. These scaly spots multiply, and become the form of leprosy called *lepra guttata*, from the Latin *gutta*, a drop, the scales looking like drops of water on the skin.

But the eruption more frequently spreads out into circular patches, of the size of a fifty-cent piece. These generally appear below the elbows and knees, and on the breast and shoulders, and back of the hands. Sometimes the entire hand is covered with scales of a peculiar silvery whiteness. These patches heal from the centre.

Psoriasis.

THIS differs from lepra in the eruption being more irregular. The spots sometimes come out in thick clusters, and blend in various ways. Instead of appearing in distinct circular forms, as in leprosy, the patches are irregular, and of every size. Instead of one well-formed and thick scale, there are many small and thin ones. And instead of a depressed centre with rising edges, the surface is level. While leprosy is a circular dry tetter, this is an irregular dry tetter.

Treatment.—Pyrogallic acid in ointment, 10 to 40 gr. to oz. Apply daily; it discolours the skin for a while. Chrysophanic acid in same strength is the best remedy known. It also discolours the skin and inflames the neighboring skin for a while. Recently the thyroid gland of the sheep has been used in five-grain tablets three times daily as an internal medicine with much success.

Pityriasis.

THIS is much like the two preceding, except that it gives rise to a copious production of very small bran-like scales. Indeed, its name is from the Greek, and means chaff or bran. It is a branny tetter. It may occur on any part of the body.

Treatment.—When the skin is highly inflamed and stiff with heat, pain, and itching, the diet should be light, and the drinks of a cooling and unexciting kind. The warm bath and gentle friction of the skin are useful. Laxatives or tonics may be employed, according to the indications,—frequently laxatives first, and tonics afterwards. The specific remedies for curing the disease are unknown; iodide of potassium (140), arseniate of iron (68), Fowler's solution, in two-drop doses, three times a day; or Donovan's solution, in five-drop doses,

three times a day. For external application, use a naphthaline ointment (177), zinc ointment, white precipitate ointment, diluted nitrate of mercury ointment, or solution of corrosive sublimate (212).

Dry Pimples.

THESE are distinguished by the high degree of irritation of the skin which they create. They are exceedingly troublesome, not only from the distress and itching they occasion, but because they are likely, in consequence of this, to be torn into painful and obstinate sores.

When appearing in children, they are called *red gum*, and *tooth-rash*. In grown persons, one form is named *lichen*, and another, distinguished by excessive itching, *prurigo*.

In this form of pimples, the fluid is not poured out upon the *surface* of the true skin, — as in several of the preceding diseases, — but is collected within the tissue of this organ, and the pimples feel hard under the finger.

The tooth-rash of infants is always accompanied with some feverishness, caused generally by irritation of the gums from growing teeth, occasionally by flannel worn next the skin.

Lichen has a variety of forms. In one case the pimples are of a bright red, in another, bluish or livid. In one case they appear in circular groups, in another they produce great disorganization of the skin, and occasion terrible suffering.

Prurigo is a still more cruel disease than lichen. The pimples are not very manifest, but the skin is thickened or swollen, and condensed. The suffering from it is terrible. It gives one no sleep, night or day. That form of it called ant-bite prurigo gives the sensation of millions of ants eating the flesh, or as many red-hot needles piercing it. This renders the existence of many elderly persons a terrible burden.

Treatment.— Careful diet, and gentle aperients and tonics, according to the condition of the system. Externally, the cold salt-water sponge-bath, and glycerine, vinegar and water, applied with a soft sponge. Tar and sulphur are among the more successful remedies in fighting this rebellious disease (362). Iron, quinine, cod-liver oil. For relieving the terrible itching of the private parts, which females sometimes suffer, I have found morphine (223), for external use, very effectual.

Lupus.

THIS makes its appearance in the form of one or more circular elevations, of a dull red or salmon-color, and partially transparent. When pressed under the finger, these elevations are found to be soft,

and when the finger is removed, they are flat and whitened. They generally appear on the face, and particularly the nose.

In another and worse form of the disease, the tubercles are harder; and after a time, they become covered with thin brown scabs, which are scratched off, and followed by others, and these by others, until ulcers appear, which are sometimes slow and sometimes rapid in their progress. The whole nose has been destroyed by them in a month. (See Fig. 76.) This is one of the diseases which Erasmus Wilson thinks, and, in my judgment, correctly, to be, like scrofula, the result of tubercular poison, filtered through the blood of several generations. It is a disease which is the most destructive in the shortest time of all diseases.

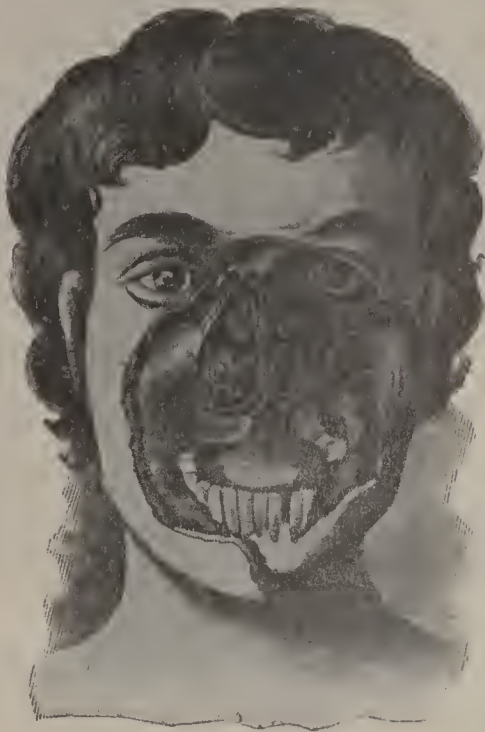


FIG. 76.

Treatment.— The internal remedies are iodide of arsenic (141), and iodide of potassium (140); the external, vinegar of Spanish flies; and to promote the healing of the ulcers, a weak solution of nitrate of silver (211) (214) is adapted.

Hardly any disease has been treated by so many different remedies. At present the prospect of a cure is good, as certain anti-tubercular lymph injections have been found effective; but no time should be lost in immediately consulting a surgeon, as its growth can be arrested, and the disease may be exterminated by early treatment.

Warts and Corns.— *Verruca* — *Tylosis* — *Clovus*.

IN the derma or true-skin there are a great many small arteries, veins, and nerves, united together, and formed into loops (see Fig. 43), resembling, in shape, the peaks of miniature mountains. These are called *papillæ*. These loops, frequently, without any apparent cause, take on a disposition to grow, and by extending themselves upward, they carry the scarf-skin along with them, which is thickened; and together they form what is called *warts*. Corns are formed by a somewhat similar growth of the *papillæ*, brought about by the pressure and friction of tight boots and shoes.

Treatment.— For warts, take a piece of diachylon plaster, cut a hole in the centre the size of the wart, and stick it on, the wart projecting through. Then touch it daily with aqua fortis. Nitrate of silver sometimes answers well for touching it. They may be taken off very neatly, sometimes, by tying a string tight around them. Corns should be shaved down close, after being soaked in warm

water and soap, and then covered with a piece of wash-leather, or buckskin, on which lead plaster is spread, a hole being cut in the leather the size of the corn. They may be softened, so as to be easily scooped out, by rubbing glycerine on them. Manganic acid destroys warts and corns rapidly. Bunions, which affect the joint of the great toe, must be treated with fomentations, and sugar of lead water (224), when there is considerable inflammation, with rest in a horizontal position. But the best cure for corns and bunions is to put away tight shoes. Wear a bunion-plaster for some time to take the pressure off of the corn or bunion.

Mother's Marks.—*Naevus*.

THE small vessels of the skin, called capillaries, suffer certain alterations of structure which pass under the name of mother's marks. These marks are simply a great dilatation of these minute blood-vessels. They vary in size from a mere point to a patch of several inches square.

The smallest of all is the *spider mark*. It is a small red point, from which several little straggling vessels spread out on all sides. Sometimes this is of the size and appearance of a red currant; at other times, of a strawberry or raspberry; and occasionally it is even much larger, and is compared to a lobster.

When the circulation is active through them, or the individual is excited by exercise, or by moral causes, these marks are of a bright red color. Some are naturally livid and dark-colored, and look like blackberries, and black currants. The blueness of these is owing to the vessels being still more stretched and dilated, and to the consequent slower passage of the blood through them, which gives more time for its change from the arterial red to the venous blue.

Treatment.—If the mark is not making progress, it had better be let alone, or only subjected to gentle pressure by putting a piece of soap-plaster over it. When its course is threatening mischief, it is sometimes cured by pencilling a small portion of its surface, from time to time, with nitric acid. They may be operated on with safety by electrolysis and other methods.

Disordered State of the Nerves of the Skin.

Itching.—*Pruritus*. This is supposed to be dependent on an altered condition of the nerves of the skin, and consists in a painful sensation of itching. There is no perceptible alteration in the appearance or structure of the skin. This itching is thought, generally, to be a result of sympathy, through the nerves, with some diseased and excited condition of a distant part. The itching is brought on by the most trifling causes, and for hours may deprive the sufferer of every particle of repose. It more frequently affects the fundament, or the private parts, particularly the scrotum.

Treatment.—As this disease is only a symptom of several others, the constitutional treatment belongs under the heads of these other diseases. The local applications for relieving the itching are, a solution of sugar of lead (224), hydrocyanic acid (363), of corrosive sublimate (212), diluted nitrate of mercury ointment, and poppy fomentations. Also (223). Tonics are often of first importance. Weak solutions of carbolic acid or soda water at times suffice.

Disorders Affecting the Color of the Skin.

Colored Patches.—*Maculæ*. The depth of color in the skin depends on the amount of a certain coloring matter, called pigment, incorporated with the deeper and softer portion of the scarf-skin. In the scarf-skin of the inhabitants of northern latitudes, there is but little of this pigment; in that of the dwellers of Africa, there is a great deal; among the inhabitants of Southern Europe, the quantity is intermediate between the two.

The depth of color in the skin depends on the energy of its action. In the tropics, where light and heat are in excess, the skin is stimulated to great action, just as vegetation is, and the color is increased and intensified. This is illustrated every year before our eyes. In summer, under the heat of the sun and the flood of light, the pigment-forming power is increased, and the fairest skin is browned; while the withdrawal of these forces leaves the winter's scarf without pigment, and blanched.

What the sun and light do, under natural circumstances, diseased action may effect. Hence we occasionally meet with alterations of color in the skin, from a disordered state of the system. We witness the formation of patches of dark color and irregular shape on various parts of the body. Sometimes they are raised above the level of the skin, and are called *moles*. At other times, they have no elevation, and spread over the whole body.

Occasionally, from some peculiarity of constitution, the pigment is diminished, and white patches appear all over the body. At other times, a black person will become completely white. Such are called *albinos*.

In many cases the coloring of the skin has *varieties* of tint, as when persons of light complexion, are, in the summer season, covered with yellow spots, like stains. These spots are known by the name of *freckles*, or, in learned language, *lentigo*.

Treatment.—It is generally best not to meddle with a mole. If it be very unsightly, let it be removed by two incisions, taking out an elliptical portion of skin, and closing the wound with sticking plaster. In the case of bleached places, apply the shower bath, tonics, and a stimulating liniment (163) to the faded spots. For the change of color called sunburn, a liniment (191) of lime-water, etc., is the best preparation. For freckles, use recipe 360, or, perhaps, still better, 364.

Disorders of the Sweat-Glands.

THE perspiration is sometimes greatly increased above nature's design. This is, technically, *idrosis*. In other instances there is too little sweating. This is called *anidrosis*. Sometimes the perspiration is so altered in its physical qualities as to have some peculiar smell. This is *osmidrosis*. In some rare instances, according to old writers, the sweat was changed in color. This was *chromidrosis*. And now and then a case occurs of bloody perspiration, of which the most memorable case on record is that of the Redeemer of men, who, in the garden, sweat great drops of blood. Several cases of this are recorded in medical books. It is called *hæmidrosis*.

The proper action of the skin being so vitally important to health, these changes often involve very serious consequences.

Treatment.— Either too much or too little sweating can generally be corrected by the cold or warm bath, friction, tonics, and proper clothing. Small doses of jaborandi, also ergot and strychnine, are among the best internal medicines (365).

Disorders of the Oil-Glands and Tubes.

THAT the skin may be limber, healthy, and fit for use, it is necessary to have it oiled every day. For this object, the Creator has wisely provided, by placing in the true skin a large number of very small glands and tubes, whose office it is to prepare and pour out upon the surface the proper amount of oil. The gland, regular little oil-pot, is in the true skin; and from it a piece of hose or tube runs up through the scarf-skin, through which the oily fluid is poured out. Some of these tubes are spiral, others are straight. On some parts these vessels do not exist; on others they are quite abundant, — as on the face, nose, ears, head, eyelids, etc. They produce the wax of the ears; and on the head, they open into the sheath of the hair, and furnish it with a hair-oil or pomatum better than the chemist can make.

These little vessels are always at work, when the skin is healthy; and no persons need be afraid to wash all over every day, lest, as the *Boston Medical Journal* taught, the skin will be injured by having the oil removed from it. You might as well be afraid to eat a meal of victuals, lest the saliva should all be swallowed with it, and none be left for future use. There is oil enough where that upon the skin comes from, and the vessels which produce it are not injured by work, any more than the muscles of the legs are by walking.

Grubs or Worms.— But, unfortunately, the skin is not well taken care of in all cases, as in cities and towns where sedentary habits prevail. Here, the actions of the skin, instead of being regular and complete, are often sluggish and imperfect; and the contents of the oil-cells and tubes, instead of flowing easily, become hard and impacted, and the vessels are not emptied. When this matter becomes station-

ary, dry, and hard, it distends the tube, and fills it to the surface; and then coming in contact with the dust and smoke of the atmosphere, the ends become black, and look like the heads of worms. These spots are common on the nose and face of persons who have a sluggish skin. They may be squeezed out by pressing the nails on each side of them. These are called *grubs* and *worms*, or, technically, *comedones*. When this matter produces inflammation of the tube, there is then a black spot *in the middle of a red pimple*, and the disease is called *spotted acne*.



FIG. 77.

Now and then the oily matter becomes very hard, producing spine-like growths, and even horns (Fig. 77); and again, it collects and forms soft tumors, as wens, etc. These are technically called *encysted tumors*. Sometimes the action of the glands is too great, and oil is poured out so profusely that the face shines with it. At other times there is so little that the skin is dry and harsh. In the hardened oily matter, which constitutes grubs, are found small animals, which Dr. Wilson calls the “animal of the oily product of the skin.”

Below are three views of him.

Treatment.—For roughness and harshness of skin, wash with soap and water every night, and rub well into the skin after the bath, and in the morning, the ointment (362), and take a dose of sulphur, etc. (23), twice a week. Or, *rub* the skin every morning with a damp

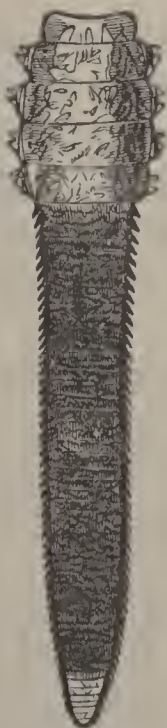


FIG. 78.

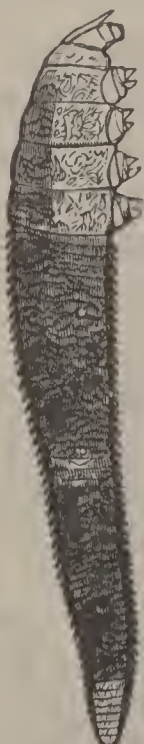


FIG. 79.

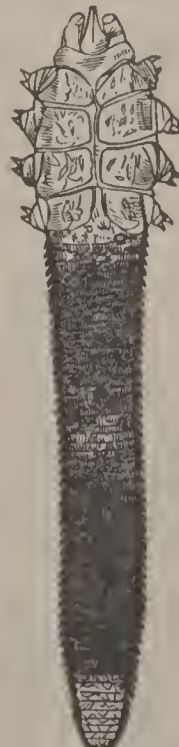


FIG. 80.

sponge dipped in fine oatmeal, and after drying the surface, the liniment (164) may be applied. The spinous variety, or porcupine disease, requires washing with a quart of warm water, having a large

teaspoonful of saleratus dissolved in it, and the use of the ointment (181) twice a day. For grubs, stimulate the skin by washing it with strong soapsuds, twice a day, and rubbing briskly with a coarse towel; and by using the corrosive sublimate (225) as a lotion.

A spare diet will do much towards improving the skin in many cases; use tonics in others. Usually, destroy the old skin first (360) and apply after (352) to heal.

Barbers' Itch. — Jackson's Itch. — Sycosis.

THIS is very much like *acne*, — only differing from it in its location. It appears chiefly on the hairy parts of the face, — the chin, the upper lip, the region of the whiskers, the eyebrows, and the nape of the neck. It consists in little conical elevations, which mature at the top, and have the shaft of a hair passing through them. These pimples are of a pale yellowish color. In a few days they burst, and the matter running out, forms into hard, brownish crusts. These crusts fall off in one or two weeks, leaving purplish, sluggish pimples behind, which disappear very slowly.

The eruption is preceded by a painful sensation of heat, and tightness of the skin.

Barber's Itch.

BARBER'S ITCH is a variety of ringworm though confined to the region of the face covered by the beard. Whether of the body, the scalp or the face, this disease is highly contagious, being communicated to other persons through the medium of soiled hands, unclean towels, razors, strops, brushes, etc. A vegetable fungus called the trichophyton is the source of the infection.

Symptoms.—Small reddish pea-sized rings with minute vesicles or watery blisters appear, they spread, branny scales form, the blisters mature, itching becomes noticeable and other areas rapidly take on the same appearances. The surrounding skin becomes congested and reddened, a gluey, yellowish, sticky fluid exudes from the scabs and thicker crusts pile up on each other. The hairs of the affected part break off very easily or fall out.

As this disease is so contagious, great care should be taken to use individual towels, that the face should be shaved if possible by the person afflicted and of course kissing the children or holding their cheeks up against the infected cheeks must be prohibited.

Treatment.—Although a tedious course may be expected to present itself, yet the greater the care used the sooner a cure will be effected. First with almond or olive oil soften the parts for two days, then shave every day or at least every other day, and after washing off with warm water apply freely an ointment of twenty grains of sulphur, fifteen grains of boracic acid mixed in half an ounce of benzoinated lard. This salve should be well rubbed in and a supply kept on the face, enough to make it look greasy day and night until cured.

Disorders of the Hair and Hair-Tubes.

THE hair is an appendage of the scarf-skin, and is intended to be both useful and ornamental.

It is subject to several disorders. It may grow too long, or too thick, or it may appear in an improper place. This last happens in the case of those little spots and patches which disfigure the face, and are called *moles*. The hair may be defective in its growth, or may fall off prematurely from various causes, or in the natural course of things from old age. This last is called *calvities*. It may change its color, too, under a great variety of circumstances, and at nearly every age. It is not very uncommon to find a single lock varying in color from that which surrounds it. Old age, the winter of life, naturally brings the frosted locks; but they frequently appear also upon the heads of younger persons. Strong mental emotions, such as fear, grief, or sorrow, may bring a bleaching of the hair in a brief period, or even suddenly.

Porrigio.—There is a troublesome disease of the hair and hair-tubes called *porrigio*. It begins with the formation of a thin layer of scurf either around single hairs, or in patches which enclose several. These patches frequently have a circular form, which give to the affection the character of a *ringworm*. The hair-tubes are generally a little elevated, in the shape of papillæ, which gives to the diseased scalp the appearance of “goose-flesh.” These hairs, losing their proper nourishment and healthiness, break off at unequal distances from the skin, leaving their rough ends twisted and bent, and matted into thick grayish and yellow crusts. Upon the surface of these crusts may generally be seen the ends of a few hairs, looking like the fibres of hemp or tow. The scratching causes inflammation of the skin after a time, and matter is poured out, which still further mats the hair, and thickens the crusts. There are several varieties of this disease, differing slightly from each other; but this general description will answer all practical purposes for this work.

The reader will often notice a disease of the hair-glands, characterized by a yellowish and dirty-looking powder, covering the scalp and hairs. This matter is collected at the mouths of the follicles, and considerable of it is strung upon the hairs like beads. Pull out a hair, and the root will be found thin, dry, and starved in its appearance. In this disease, it is difficult to keep the hair cleansed, or to prevent its falling off.

Favus.—Still another disease, called *favus*, is known by the collection of a yellow substance, at first, around the cylinder of the hair. This substance, after a time, spreads out upon the scarf skin, and dries into yellow crusts, in the form of a cup, around the base of each hair. A number of these cups, collected together, look like the cells of a honey-comb. This disease is contagious, and is communicable by contact to any part of the skin.

Treatment.— For removing the hair from particular parts of the scalp, it is common to resort to *depilatories*. Of these, the recipes 260, 261, 262, are frequently used, and are as good as those advertised; indeed, they are the same. Forceps are the best means.

To prevent loss of hair, and to restore it when lost, the circulation should be stimulated in the small vessels of the scalp. With this view, washing the head every morning with cold water, drying it by friction with a rough towel, and brushing it to redness with a stiff hair-brush, are excellent. To these should be added some stimulating ointment (183), or liniment (257), (258), (259). These last are about the best known preparations for causing the growth of the hair.

Ringworm of the scalp requires attention to the diet, and such remedies as will improve the general health, with stimulating applications externally (257), (258), (259). 366 is the newest and best mode.

To color the hair, several preparations are used. Of these, 163 is about the best. It produces a beautiful black. A preparation of sulphur and sugar of lead (264) is the famous compound recommended by General Twiggs, and extensively used. Preparations of nitrate of silver (265), (266), (311) are much in use in some quarters. They perhaps give a finer black to the hair, but they render it dry and crisp, and they will stain the skin, if care is not used in applying them.

Use care in the use of these remedies.

In Favus, the two great objects to be gained are, to remove all local causes of irritation, and to excite the diseased hair-glands to healthy action. The first object is affected by cutting off the hair with the scissors, and removing the crusts by washing the scalp with castile soap and water. It may be well first to wet the crusts through with corrosive sublimate (212), in weak solution. The washing with soap and water should be repeated every day, and be followed by rubbing into the scalp a stimulating ointment (183). A very weak solution of the nitrate of mercury (226), applied every other day, with a camel's hair brush, sometimes produces excellent effects.

Lice.

Pediculosis or Lice is a contagious, animal, parasitic affection, characterized by the presence of pediculi in the skin and scratch-marks of the sufferer ensuing from the annoying itching. There are a number of varieties classified according to the peculiar parasite and its location. They all cause great discomfort and itching.

The Pediculosis Capitis, or head-louse, is found in the scalp, and is a long, oval body with six legs furnished with nails; it has an oval head with two prominent eyes and two horns. The ova or *nits* are

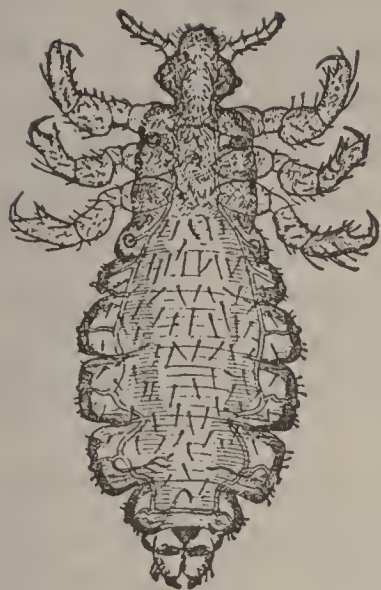


FIG. 81.
HEAD-LOUSE.

small whitish bodies closely glued to the hair and look like small pieces of dandruff. One or two are deposited on a hair. They occur for the most part in poorly nourished children brought up under bad hygienic surroundings, and thence communicated to others. They cause extreme itching and scratching, so that often the irritation is unbearable and the sticky serum of the blood mats together the hair, forming crusts. Sleep is often interfered with and ill health results. (See Fig. 81.)

Pediculosis Corporis, or body-louse, is generally the property of the clothing; it is somewhat larger than the head-louse and deposits its eggs in the seams of the clothing, remaining on the body only long enough to gain sustenance. The young are hatched in five or six days. The louse reproduces again in eighteen days. As the parasite crawls about it produces extreme itching and the scratching follows, resulting in long lines of excoriation. The chief locations for this parasite are the back, chest, abdomen and thighs. The middle-aged and elderly are more apt to be attacked than the young. Here uncleanness again is a prime factor in their occurrence. (Fig. 82.)



FIG. 82.
BODY-LOUSE.

Pediculosis Pubis, or crab-louse, is a smaller, shorter, stouter parasite than the two preceding, and attacks the pubes particularly, but is also found in the axillae and over the eyelashes and beard of the male. They may be seen clinging closely to the skin with remarkable tenacity. They occur on adults and produce the same lesions as the other varieties. They are generally the result of promiscuous sexual intercourse. (Fig. 83.)



FIG. 83.
CRAB-LOUSE.

Treatment.—The main object in the treatment of these filthy diseases is the destruction of the parasite. The lesions they produce disappear with the disappearance of the animal. It need hardly be said that strict cleanliness of person is a *sine qua non*. The remedies usually employed in their extermination are the mercurials, sulphur, carbolic acid, tobacco, etc.

In case of the head-louse the most efficacious method of treatment consists in saturating the head over night

with petroleum and washing off with soap in the morning. In young children the hair may be cut to get rid the more easily of the nits, but this is not necessary. The applications of petroleum may have to be repeated several times and the hair frequently washed with soft soap, soda washes, vinegar, etc., to get rid of the nits. If the louse be of the body variety the treatment must be directed to the clothing, which is to be changed often and either boiled or baked. This process is to be repeated until no more parasites are found. The itching of the body is best allayed by carbolic acid lotions (one teaspoonful to pint of water).

The crab-louse is best treated by the well-known mercurial ointment, or blue ointment, and is to be washed off with soap and water each morning. It must be persisted in till no more crabs are found and no further itching is noticed.

Bed-Bugs.

THE best preventives against these annoying bugs is corrosive sublimate and pyrethrum powder. Purchase a small bottle of the corrosive sublimate tablets, usually sold at the druggists for surgical purposes, and dissolve one in a quart of water. This solution is to be freely used about the cracks of the bed, after it has been taken apart, and also about any wooden furniture of the room as well as the woodwork of the room. The powder is then to be used freely. This process is to be repeated several times.

The bites themselves are best relieved by carbolic lotions, vinegar and water, ammonia and water, etc.

Freckles.

THIS is a disease of the pigment layer of the skin and consists in a deposit of the coloring matter of the skin in irregular shapes, of the size of a pin-head or pea, and are yellowish, brown or even blackish, occurring for the most part on the face and back of the hands. They may be few and scattered or exceedingly abundant and cover a large area. All ages are subject to them except in very young children. The light-complexioned are more subject to them, while the red-haired seldom escape them. Sunlight develops them so that many have them conspicuously only in summer. The possession of freckles is a matter greatly of idiosyncrasy, as many people never have them, no matter how much they may be subjected to the sun.

Treatment.— One's aim in treatment should be toward destroying the pigment layer by some corrosive agent, like corrosive sublimate, which perhaps is the best remedy.

Two grains to the ounce in water will in most cases prove sufficiently strong. The susceptibility of the skin to this remedy and the extent of the area involved have much to do with the strength of the

remedy employed. This remedy is poisonous and is to be used with care. Do not get it near the lips, but to effect a cure it must be persisted in for quite a while.

Washing the face in buttermilk several times a day is excellent.

Corns.

OF all the minor ailments of the human body, few are more distressing than the inflamed corn. They consist of a thickening of the outside or horny layer of the skin. As a secondary change, consequent on long irritation, the nerve and blood supply increase and an extreme tenderness is produced, amounting often to incapacity to walk or work. They are caused mechanically by the undue pressure of the boot against the joint or by one toe pressing against another. Too short a boot, which causes pushing out of the big toe joint, too narrow a boot, causing crowding of the large joints, are the more frequent causes of the corn.

Bunion.

THE bunion is produced by wearing too short a boot, as a rule, and consists in the gradual displacement of the big-toe joint, so that finally there is an actual deformity. The corn usually is added to this deformity.

Treatment.—The outer layers of the corn should be softened and scraped off by a sharp, thin knife. The softening process may be effected by soaking in a soda solution, or better still, by the following mixture:—

Salicylic acid	one-half ounce
Extract cannabis indica	ten grains
Collodion	one scruple

This is to be applied each night. Care is to be exercised in not paring the corn too closely lest bleeding occur and poisoning ensue from the unclean knife that may be used. Pressure of the boot must be avoided by the substitution of another form of boot and also perhaps by wearing a plaster with a hole in the center, thus distributing the pressure over a greater area. When trimmed the corn is to be likewise covered by a corn-plaster bound on the foot by strips of adhesive plaster. Painting with iodine often takes out the soreness and hardens the skin so that it may be more readily cut. Inflamed corns should be poulticed and treated like any pus wound. Spirits of turpentine will often take the soreness out of a corn. Absorbent cotton, or better, wool, worn between the toes, will prevent or cure a corn between the toes.

Dandruff.

THIS is a disease of the sebaceous glands of the scalp, characterized

by a large secretion of the sebaceous matter and forming crusts or scales. The secretion may be so thick and oily as to mat together the hair, or so dry as to fall off the head in a shower when the head is combed. It is the most frequent cause of baldness. The crown of the head is the most frequent location of this disease.

Treatment. — Inasmuch as those subject to this disease are often below par in health, such constitutional remedies as cod-liver oil and iron are valuable adjuncts in bringing about a cure. Should the amount of scales be considerable, especially if there are crusts, as in the case of little children, the best procedure consists in oiling the scalp over night with some bland oil, wearing a flannel cap, and washing off the oil in the morning with soft-soap and water. The following blood tonic is an admirable one for adults: —

Tincture of iron	one ounce
Dilute phosphoric acid	one ounce
Syrup of lemon	two ounces

Take one-half teaspoonful in a wineglass of water three times daily. Use a glass tube to avoid staining the teeth. The scalp needs a shampoo once or twice a week; the following will be found to be a suitable one: —

Green soap.	eight ounces
Alcohol	four ounces

Put a little here and there over the scalp and then rub up with warm water. The scalp may then be stimulated night and morning with a little of the following lotion: —

Tincture of cantharides	three drachms
Tincture of capsicum	three drachms
Castor oil	two drachms
Alcohol.	two ounces
Spirits rosemary	two ounces

Another good remedy for daily use: —

Hydrate of chloral	two drachms
Water	four ounces

The yolk of two eggs well rubbed into the scalp and afterwards washed off with hot water is also a good cleansing agent and shampoo.

For very stubborn cases the following lotion applied night and morning will be found efficacious: —

Corrosive sublimate.	12 grains
Glycerine	4 drachms
Alcohol.	5 ounces
Spirits rosemary	4 drachms

Whatever method is pursued, the application must be persevered

in and applied from twice daily to once every few days according to progress made and severity of case.

Baldness.

THIS disease is generally the outcome either of some constitutional weakness and requires general tonic treatment like iron and cod-oil, or is the result of some local lesion of the scalp proper. When due to syphilis, the hair falls out suddenly and quite extensively; the eyebrows also suffer the same way. Its treatment is to be conducted on the same plans as directed under treatment of the syphilitic disease. Eczema, scrofulous blood, etc., may also be the exciting cause of baldness. Baldness may ensue in areas only, and oftentimes is as complete as though no hair had ever grown there. This form is apt to be very stubborn and requires very irritating treatment, like blisters or the rubbing in of strong carbolic acid once a day for a number of days before ceasing treatment.

The baldness of old age is of course irremediable, but may be arrested by attention to the general health and the employment of remedies mentioned under the consideration of dandruff.

As has been mentioned, dandruff is the most fertile source of baldness. When once the scalp is clean and the dandruff is cured the following lotion will be found to be of great value in those cases of baldness characterized by the hair falling out in small patches:—

Carbolic acid	one drachm
Alcohol	one and a half ounces
Castor oil	two drachms
Oil bitter almonds :	ten drops

Strong carbolic acid itself may be rubbed in the inveterate cases.

The following lotion also contains desirable ingredients:—

Tincture cantharides	one and a half ounces
Tincture capsicum	one and a half ounces
Castor oil	two drachms
Cologne	one ounce

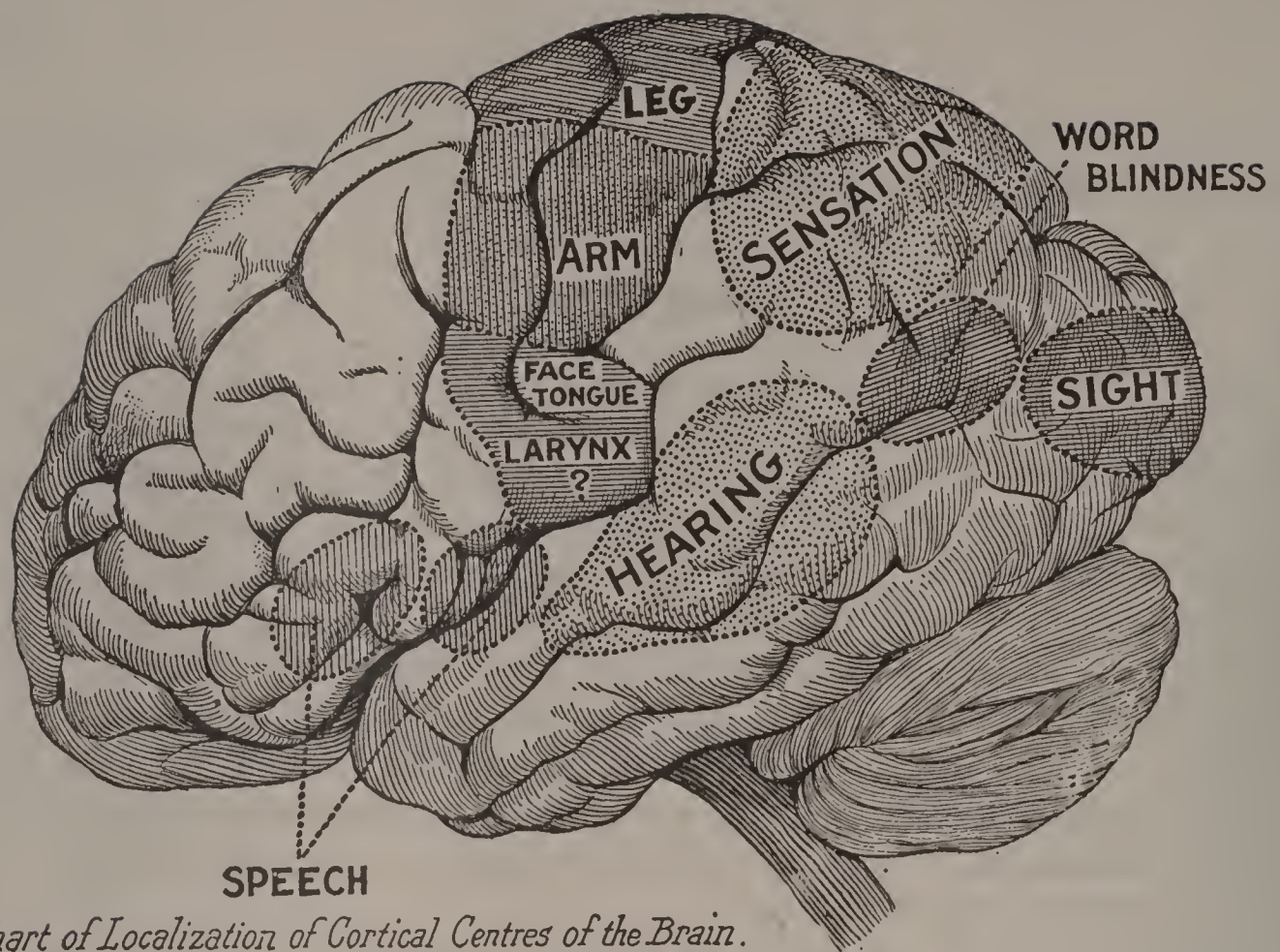
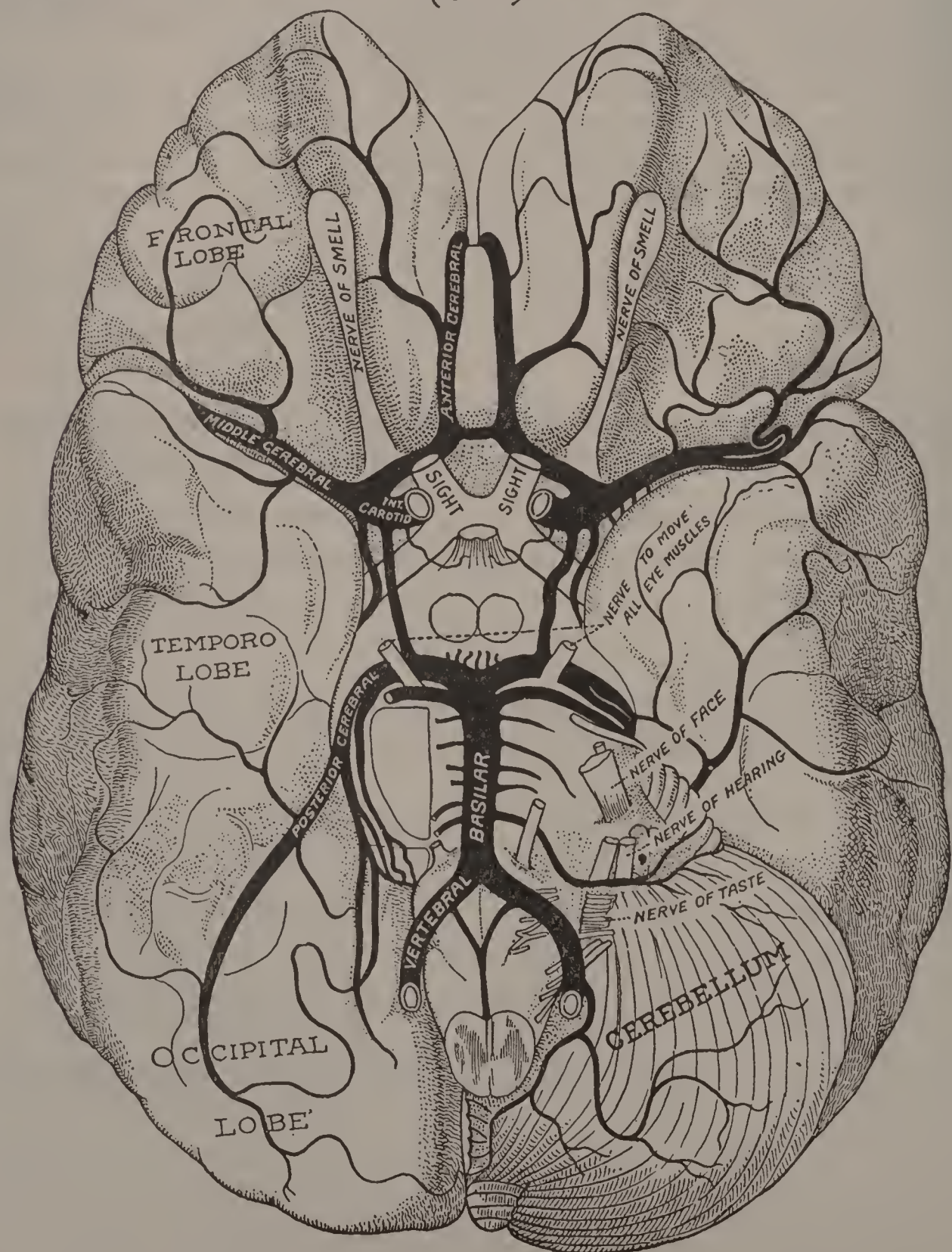


Chart of Localization of Cortical Centres of the Brain.
(GRAY)



Nerves and Arteries of the Brain. (GRAY)

DISEASES of the BRAIN and NERVES

DISEASES OF THE BRAIN AND NERVES.

(Also see Anatomy of Brain and Nerves.)

THE brain and spinal column are the great centres of the nervous system.

The brain produces *sensation, thought, and voluntary motion*. When this organ is diseased, therefore, we may expect one of these functions to be either disturbed or destroyed.

Of Sensation there are various disturbances, perversions, and suspensions, caused by disease of the brain and nerves; such as nausea, giddiness, specks floating before the eyes, ringing in the ears, deceptive tastes and smells, intolerable itching, neuralgic pains, boisterously high spirits, depression without apparent cause, anxiety, and dread.

Thought, in like manner, is disturbed and perverted in many ways. There is high delirium, dullness and confusion, loss of memory, weakened judgment, and every degree of stupor, down to entire loss of consciousness.

Voluntary Motion is perverted and destroyed in muscular twitchings, trembling of the limbs, spasmodic stiffness, involuntary jerkings, convulsions, muscular debility, and palsy.

The brain is composed of three parts,—the *cerebrum*, the *cerebellum*, and the *medulla oblongata*. These are all contained within the skull bones, and are immediately covered by three membranes, called the *dura mater*, the *arachnoid*, and the *pia mater*. The *dura mater* is a strong, *fibrous* membrane lying next to the skull-bones. The *arachnoid* is a *serous* membrane, lying next below, and the *pia mater*, which means pious mother, is a *vascular* membrane, lying next to the brain, dipping into it in places, and containing the vessels which bring to it all its nutrient materials. Hence its name.

These membranes are all liable to be inflamed,—and so is the brain.

Inflammation of the Dura Mater.

THE inflammation of this membrane does not often occur spontaneously; but it happens frequently from external injuries, as blows upon the head.

After a blow upon the head which stuns him, a man may recover himself, and for some days remain in perfect health. Then he has

pain in the head, is restless, cannot sleep, has a flushed face, red eyes, hot skin, hard pulse, rigor, nausea, vomiting, — ending with convulsions and delirium.

This disease is often caused by what is called *otitis*, or inflammation of the internal ear. In such cases, inflammation will arise within the tympanum, causing intense earache; matter comes at length from the external ear, but the pain does not stop; the patient shivers, becomes drowsy, perhaps delirious, and finally sinks into stupor. The dura mater is inflamed.

Treatment. — When the disease arises from inflammation in the ear, leeches are to be applied behind the ear, and blisters and other irritants afterwards. Other modes of treatment will be mentioned after the next two forms of disease.

Inflammation of the Arachnoid and Pia Mater.

Arachnitis.

THESE two membranes are generally inflamed together. They are so intimately connected that each involves the other in its own troubles.

Generally this is divided into three stages: —

The Irritative, characterized by wakefulness, irritable temper, repugnance to strong light, and contraction of the pupils.

The Inflammatory Stage, known by transient pains in the head, alternating with similar ones in the bowels, increased restlessness and irritability, a quick and tense pulse, an expression of discontent on the face, the eye-brows knit and frowning, the eye-lids half closed, retching and vomiting, deep sighing, and torpid bowels.

The Depressing Stage, in which the delirium is more continuous, the countenance has a look of surprise and stupor, the pupils are contracted or dilated, the white of the eyes injected and red, the pupils rolled up during sleep, constant sleepiness, inattention to surrounding objects, torpidity of mind, gradually increasing until complete coma closes all the senses.

The disease does not always exhibit all these symptoms, or come on in the regular way described. Sometimes the first thing noticed is a long-continued paroxysm of general convulsions. Again these convulsions will come on after violent pains in the head, and are attended with screaming.

Inflammation of the Brain. Brain Fever.

Encephalitis. — Phrenitis.

ACUTE and general inflammation of the brain and its membranes has two stages.

The Stage of Excitement, in which there is intense and deep-seated pain in the head, extending over a large part of it, a feeling of tight-

ness across the forehead, throbbing of the temporal arteries, a flushed face, injected eyes, looking wild and brilliant, contraction of the pupils, great shrinking from light and violent sound, delirium, want of sleep, general convulsions, a parched and dry skin, a quick and hard pulse, a white tongue, thirst, nausea and vomiting, and constipation of the bowels.

The Stage of Collapse, in which there are indistinct mutterings, dull and perverted hearing and vision, double vision, the pupil from being contracted expands largely and becomes motionless, twitchings of the muscles, tremors and palsy of some of the limbs, a ghastly and cadaverous countenance, cold sweats, profound coma, and death.

The disease will not show all these symptoms in any one case. It runs a rapid course, causing death, sometimes, in twelve or twenty-four hours; or it may run two or three weeks.

Treatment. — This should be energetic, and administered *early*. The measures usually employed are *hot foot-baths*, and the *application of cold to the head*, with occasional mustard poultice to legs.

General Blood-letting. — This is much approved by many; for myself, I do not like it. Wet cups and leeching are about the extent to which I would ever carry the abstraction of blood in these diseases. These may sometimes be applied with advantage to the neck, and behind the ears.

Cold Applications. — These, applied to the head, are of great importance. First, shave the head, and put on cloths wetted in water as cold as it can be made, changing them often; or, put powdered ice in a flexible bladder, and lay it upon the head, — taking care not to make it too heavy. Heat in a few cases is better borne.

Cathartics. — These, while the inflammation is in the active stage, should be thorough and energetic. To effect it, many use calomel and other forms of mercury. They are not needed. Croton oil is one of the best articles (31), or colocynth, gamboge, etc. (32), without the oil, or the compound powder of jalap.

In the stage of collapse, if there is pallor of the countenance, a feeble and flying pulse, great debility and tremors, coldness of the extremities, etc., give wine and other stimulants.

See that the bladder is emptied every day.

The feet, in the early stage of the complaint, should be bathed in warm water, or mustard and water (242). Mustard draughts must also be put upon the feet.

The tincture of veratrum, given in full doses, to bring down the pulse, and produce sweating, must not be omitted. Give (351).

Softening of the Brain. — *Ramollissement.*

INFLAMMATION of the brain, when it has run its course, sometimes leaves this organ, or portions of it, in a softened condition. The

same mischief may happen to the brain from the blood-vessels which run to it being diseased, so as not to be able to carry blood for its proper nourishment.

Symptoms.—The most remarkable symptom of this disease is the rigid contraction of the muscles which draw up the limbs; the hand may be clenched and pressed against the shoulder, or the heel carried up to the hip.

The early symptoms are tingling, numbness in the ends of the fingers, perverted vision and sometimes blindness. The person usually tidy in habits and dress now becomes careless and slovenly. He occasionally complains of sleeplessness and the temper becomes irritable and friends notice that he takes offense when usually he would not notice. His forgetfulness is very noticeable at times to the extent of forgetting his name and that of his family, later on the symptoms are similar to those which will be described under the heading “Dementia.”

Suppuration and Abscess of the Brain.

WHEN a diseased brain is examined after death, sometimes matter is found mixed in with the softened portion. This shows that suppuration took place. At other times, the matter is found in a cavity, which shows that an abscess had formed during life.

The symptoms of these mischiefs are convulsions in the earlier stages, and palsy in the latter. Surgical methods now often save life, and cause a cure in these cases.

Induration of the Brain.

INSTEAD of softening the brain, inflammation sometimes does the very opposite, — it hardens it, — producing a change something like that which happens to white of egg when dipped in hot water.

Convulsions appear as the result of this change, as in suppuration and abscess; palsy much more seldom.

Tumors of the Brain.

TUMORS infect the brain occasionally, — growing around it, on all sides, pressing themselves into its substance, and causing many disturbances. Cancers and hydatids are found there. The signs which these irritating bodies produce are like those of other diseases of the brain, and therefore cannot be distinguished during life. Syphilis is often the cause of them, and, when due to this, may be cured.

Delirium Tremens.—Drunkard's Delirium.

Mania a Potu.

THIS is often mistaken for brain-fever; but it is quite a different

disease. It is not the result of *inflammation* of the brain, but of *irritation*. It is important to distinguish it from inflammation, because the remedies which are employed for that would be injurious if used for this.

The Symptoms are incessant talking, fidgeting with the hands, trembling of the limbs, a rapid pulse, profuse sweating, utter sleeplessness, and a mingling of the real with the imaginary in the busy talk. The patient is apt to think some one is about to do him a great injury, yet is unwilling to be alone. His face is pale and sallow (sometimes red and flushed), his eye is rolling, quick and expressive, his speech stuttering and inarticulate,—bodily and mentally, he is *busy* day and night, and can with difficulty be confined to his bed or room. As the disease advances, and he has been long without sleep, he imagines vermin to be crawling upon his scalp and body; troops of rats run across his bed, or look at him out of the wall; giant boxers confront him, and he squares off for a round at fist-cuffs; animals, figures of all shapes, and horrible monsters frighten his imagination; devils laugh at him, and dance before him. In long and sleepless hours, he talks and chatters with these spectral phantoms,—now beckoning them, now shrinking from them, till he wears out and sinks from exhaustion. This is a disease of drunkards and opium eaters. The attack generally occurs in consequence of the withdrawal for three or four days of the accustomed stimulus.

If the delirium is the result of recent heavy drinking, an emetic should be administered to empty the stomach of what is remaining there. Sulphate of zinc, 20 grains well diluted with water, or ipecac, 30 grains may be given, after which a good cathartic such as 30 grains of compound jalap powder for unloading the bowels may be used. If the patient is depressed and nervous, spirits of aromatic ammonia may be used. In more marked cases, strong black coffee by the mouth or rectum; even strychnine in 1-30 grain doses will be needed for the heart. Bromide of soda, 30 grains dissolved in one-third glass of water may be given every two hours to keep the patient quiet. Morphia and the other preparation of opium, while very valuable, should be used with great care; 20 drops of laudanum every two hours for two or three doses will usually, in conjunction with the bromide, quiet the patient, but the exclusive administration of opium or giving it in large amounts should be under the control of a physician. Bathing the patient in the tepid bath, during which cold applications are kept on the head, may be used for hours at a time if the patient does not rebel at this treatment, but usually the quieter he can be kept the sooner he will recover.

Inebriety.—Drunkenness.

IN the beginning of the present century insanity was regarded as a visitation of God's displeasure and not as a disease subject to scientific investigation and amenable to treatment. Inebriety is regarded now

as insanity was some hundred years ago, the disease being considered irremediable. Alcohol is a poison, and like other poisons is capable of destroying life. In large doses it becomes a powerful irritant or a narcotic producing coma and death. It being constantly introduced into the system produces a general disease in the system. We believe inebriety can be cured like any other disease, but is subject to relapses like other diseases.

The "alcohol habit," under the title Inebriety, oftentimes has the symptom or outward manifestation of diseased conditions, which antedate the alcoholic craving, and are its predisposing and exciting causes which retard, and sometimes even prevent a cure.

In the popular, and too often in the professional mind, alcohol is regarded as the cause and root of the whole evil of inebriety. We desire to assert that inebriety is frequently dependent upon causes with which alcohol has nothing to do. There is a neurotic craving—it may be congenital, it may be developed as the result of disease or accident. This craving demands the various forms of narcotic stimulants, those that first excite, then produce narcosis more or less complete. Alcohol fulfills this condition, is easily accessible, reasonably inexpensive, and is the one drug that meets a morbid craving that seems to be almost universal.

We do not fail to recognize the deteriorating effects of alcohol manifested principally, at least, more pronouncedly upon the nervous system as seen in the various forms of insanity. We also note the degenerating effects of alcohol on lung, liver, kidney or other organs and tissues of the body; or as a special poison in the same sense that lead, arsenic and tobacco produce their effects.

We believe that the great majority of inebriates become so from heredity, environment and disease, that produces physical degeneracy and pushes them over and plunges them into inebriety.

The patient with fever craves and may drink water freely, excessively and injuriously. The diabetic is an aqua-maniac in a certain sense, but in neither case do we recognize the aqua-mania or water craving as the disease, but rather as proceeding from certain abnormal conditions which we readily recognize. So the liquor thirst is the result of morbid conditions that produce an abnormal desire, which alcohol seems, temporarily at least, to satisfy.

The excessive use of alcohol, while it is oftentimes the cause of various diseases of the nervous system, and also a frequent cause of insanity, is also the precursor or initiatory symptom of certain diseases of the nervous system and also of insanity.

The paretic will crave and use alcohol in the earlier stages of his malady. The victim of nervous syphilis is addicted to it, more especially in the later stages, when the nervous system becomes involved.

Any depressing, exhausting, or painful disease may produce the alcoholic craving, alcohol being sought for its stimulating properties.

Alcohol, moreover, is second only to opium, ether, or chloroform as an anæsthetic; indeed, has been used as a substitute for the latter. Hence, persons find experimentally that alcohol relieves pain, and its use is carried to a harmful extent, its deleterious effects produced, and inebriety established.

It is possible that a healthy individual, with good personal and family history, may use alcohol sociably or as a matter of custom, until the habit becomes firmly established.

The alcohol breaks down the constitution, invades and degenerates the nervous system, and thus develops inebriety, because the alcoholic degenerations, or even functional disturbances of the nervous system, are the very conditions under which inebriety is established. We say this is possible, but we assert again that behind the large majority of inebriates will be found a defective family or personal history, not only complicating but causing the inebriety; retarding, oftentimes preventing a cure.

It can be thus seen that inebriety is but a symptom — a flag of distress hung out by the nervous system. As some one has aptly said, “neuralgia is the cry of a diseased nerve,” so the “drink-craze” is the cry of the neurasthenic for a stimulant, of the pain-tortured nerve for an anæsthetic, of the victim of insomnia for a hypnotic.

Not any patient that applies for relief to the physician needs a more careful examination than does the inebriate. You may rest assured that there is some underlying cause, probably several that must be removed if we would restore the inebriate to his former habits of sobriety. If he is found suffering from the later manifestations of syphilis he will need special treatment for this condition, especially if the nervous system is involved; a painful stricture of the urethra may require division.

Chronic malarial poisoning with its complicating disorder of stomach, liver and spleen, will demand special treatment. In a case on record the irritation of a tape-worm produced a tendency to the excessive use of alcohol, which tendency passed away when the worm was expelled.

In a word, a large majority of inebriates are diseased persons, and that primarily and antecedent to their inebriety, which is appended to and aggravates their diseased condition.

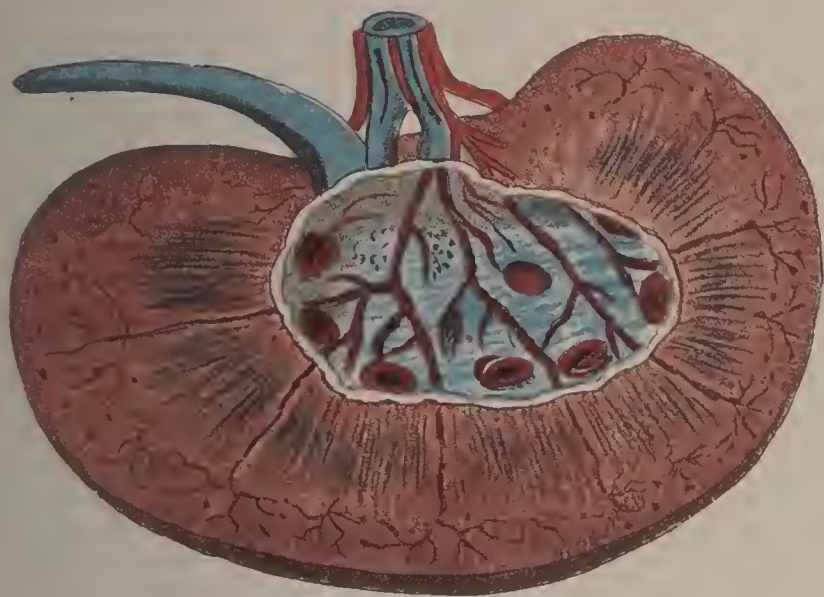
Special diseases, therefore, require special treatment, irrespective of the inebriety, if we would cure the inebriate. In this connection we may ask, are there any drugs that we can substitute for alcohol that will take its place, and satisfy the inebriate, as a substitute for alcohol?

Opium and the salts of morphia will do so in a marked degree, although cocaine, chloral and the bromides have been so used.

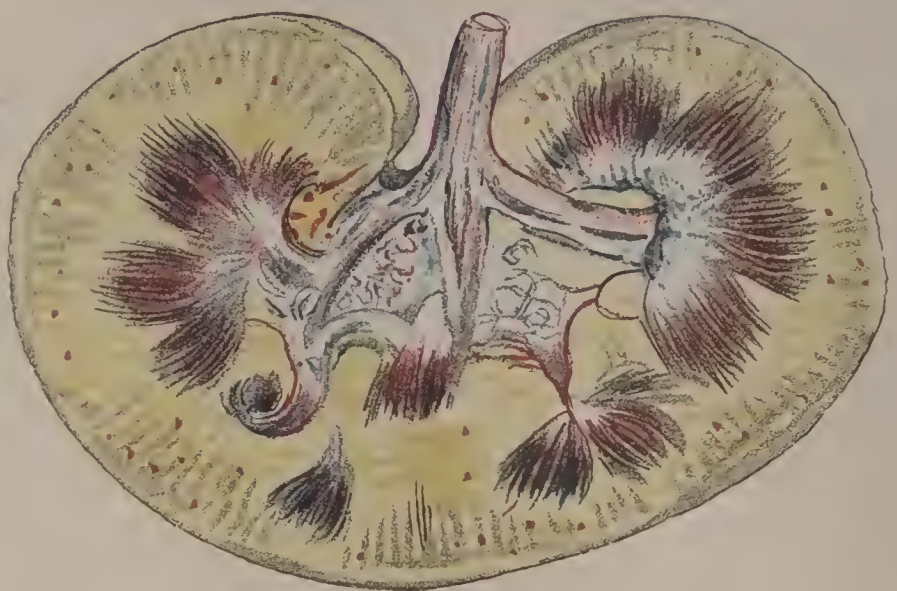
The use of opium or morphia is not uncommon among inebriates who desire to “leave off alcohol.” The inebriate, as a rule, is a congenital neurotic. From birth almost, he reaches out for some drug that will gratify or meet his neurotic craving. The alcohol and the

ACTUAL EFFECTS OF ALCOHOLIC LIQUORS ON THE HUMAN STOMACH AND KIDNEYS

THE KIDNEYS

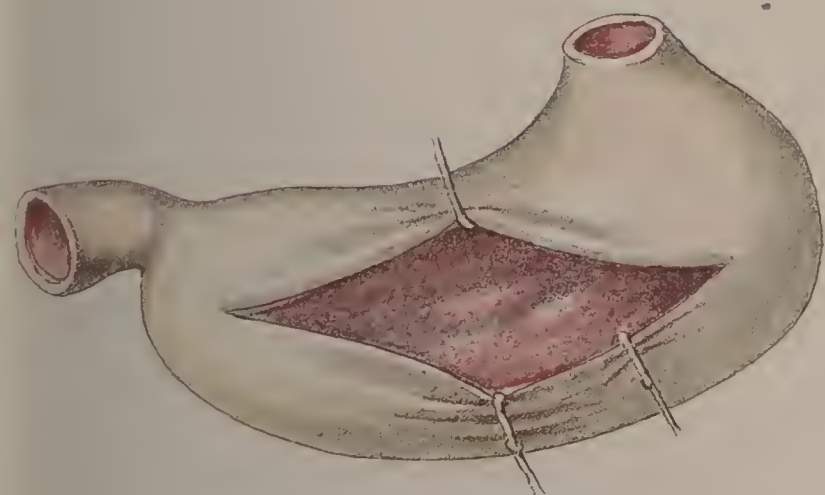


HEALTHY CONDITION

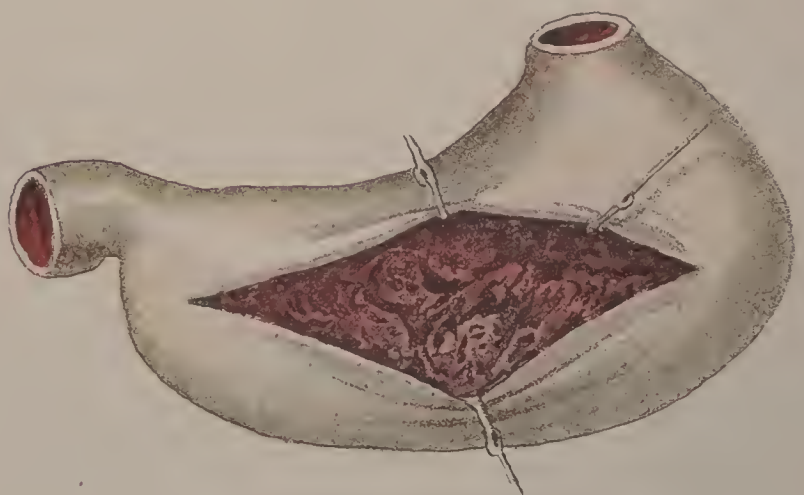


DISEASED FROM INTEMPERANCE

THE STOMACH



HEALTHY CONDITION



DISEASED FROM INTEMPERANCE

opium habit to the inebriate are convertible habits, and the inebriate, like a pendulum, will swing from alcohol to opium; not infrequently the two habits are combined, as in the form of *tinct. opii*, constituting a mixed habit, in which the effects of both alcohol and opium have to be considered. Occasionally a case is presented in which morphia is used hypodermically, and the alcohol used in the usual manner. In cases where opium addiction is associated with the habitual use of alcohol, the opium habit is of paramount importance and the alcohol assumes a secondary place.

The fact that opium can substitute alcohol is the keynote to many vaunted secret cures, in the so-called "narcotic treatment" for alcohol. It simply substitutes one habit for another, and as long as the victim is taking the so-called remedy he is reasonably comfortable. But I admit if the "narcotic treatment" was carefully practiced, in judicious hands it might, in conjunction with such other remedial measures as would best eradicate the primal causes of the inebriety, prove useful, if not curative, in cases of inebriety.

Are there any drugs that are specifically beneficial for the treatment of inebriety as such? We would state that drugs that act directly as a stimulant to the nervous system are of value. Strychnia is a type of this class of drugs, and one of the best of its class.

Luton, of Rheims, Belgium, was the first to point out its value in alcoholism. Then the Russians used it largely and it was known as the "Russian treatment," and finally, the Americans adopted its use in such cases.

Strychnia has proved serviceable as both abortive and curative in acute alcoholic delirium, as well as useful in the more chronic forms of alcoholism. It seems to be tolerated in such cases—in cases of alcoholic poisoning under normal conditions, we have no record of the value of strychnia as an antidote; interesting experiments might be made on the lower animals with the view of determining this point. Strychnia is an excellent cardiac tonic, and one of the best respiratory stimulants, and might be used in general medicine in cases in which alcohol is oftentimes prescribed.

Oxide of zinc, during the past twenty years, has been used with advantage in cases of chronic alcoholic intoxication.

Quinine has been used more particularly in the later or convalescent period of the treatment of alcoholism.

The so-called "Red Cinchona Cure" for a time interested the public. Rational medicine does not recognize any special drug or specific remedy as a universal cure for inebriety, nor does clinical experience form any basis for such a claim. From the very nature of the case, such a remedy would be impossible. The ætiology of inebriety is dependent on such a variety of causes and its environments and complications so numerous that any one remedy could not fulfill all, or even meet the more important of these conditions. However valuable drugs may be to meet certain indications in the various conditions incident to inebriety, we believe that so far as the curative

treatment of inebriety is concerned, drugs must assume a secondary place, valuable as they may be in their respective spheres.

In the treatment of the alcohol habit we place first: *Restraint and seclusion in a special asylum for a definite period, and total abstinence during this period.*

In a few words, concisely expressed, this statement includes the plan now adopted by the leading asylums of this country and of Europe for the recovery of the inebriate. It involves restraint, (legal, if need be), seclusion, a special institution, in which all the latest and best methods of dealing with the inebriate are procurable, a sufficient period in which to apply these measures, and we need hardly add, a long period of total abstinence from all alcoholic liquors. We need hardly add that diet, rest, recreation, hygienic surroundings, and the exhibition of appropriate drugs are all included in the above plan.

The causes of degeneration being removed, the factors of regeneration being brought into action, new formation of nerve, muscle and tissue must supplant degenerated tissue, if haply organic disease has not resulted in irreparable injury.

We have hinted at an hysterical element in the history of inebriety. The inebriate, whatever may be his condition, is largely influenced by his surroundings.

In the light of such an hysterical element in the clinical history of inebriety, we can readily account for the apparent success of the so-called temperance movements that sweep over communities periodically and effect many apparent cures, or rather, in the language of the day, reformations. Such an element will also explain why, after such a tidal wave of excitement, relapses take place oftentimes in large numbers, and the period of excitement is followed by a period of reaction.

The occurrence of relapses is readily accounted for by the fact that the stimulus of the period of excitement buoys up the inebriate for the time being, during which strong mental emotion is a powerful factor. He is keyed up, as it were, for the time, and sustained by a moral stimulus. When this is withdrawn, reaction, followed by corresponding depression, sets in, and the old method of stimulation is again imperatively demanded and yielded to.

Why some inebriates go through such a period of excitement and do not relapse, and why others do, can be accounted for by the fact that the former are in a reasonable degree of physical health, and are not burdened, dragged down and handicapped, either by disease that is non-alcoholic, or that is the result of alcoholic degeneration. The inebriates so affected are not influenced, or if at all, only temporarily, by the so-called "temperance revivals" that appear and disappear with almost stated regularity in large and small communities, and we must add do good, but only in the channel indicated.

It is also operating through this hysterical feature of inebriety

that charlatanism may effect a temporary, possibly a permanent success in a certain class of cases.

In cases where the hysterical element largely preponderates, we believe psycho-therapeutical agencies, or even those that appeal to purely mental conditions, will be of service, but they will not cure a cirrhotic liver, lung, or kidney, or remove the physical causes upon which the inebriety may depend. In addition to those measures that appeal to the higher moral nature, there ought also to be combined such as meet certain intelligent wants. To this end all reasonable amusements, entertainments, and especially such occupations as will interest the person and keep him busy, should be encouraged, if not made compulsory.

Incidentally I may mention hypnotism as having been used especially by French physicians, with some benefit in cases of chronic alcoholism. I have no data to give, and have not had any personal experience with it.

The Bi-Chloride of Gold cure, known as the Keeley cure, is in many cases successful, but not in all. Would advise its use as a last resort; though we think its use sometimes leads to insanity and suicide. It cures at all events for the time being.

If the temperance advocates would supply light, warm, cheerful places of resort with hot and temperance drinks, supplied with pool and billiard tables where the poor could spend their evenings and meet each other and amuse themselves at a reasonable expense, and establish cooking schools for the wives where they could learn how to cook nourishing and palatable food which would supply the body with the nourishment which it must have and requires, we believe it would do more towards temperance than all the laws that could be passed.

Many prominent physicians who have made alcoholism a specialty, strongly recommend the immediate withdrawal of all liquors, and isolation from all company where habits and influence would lead to temptation, taking the following prescription faithfully for three or four months:

Sulphate of magnesia	.	.	.	.	one teaspoonful.
Nitric acid	.	.	.	.	" "
Sulphate of iron	.	.	.	.	" "
Powdered cinnamon	.	.	.	.	" "
Sugar of milk	.	.	.	.	three teaspoonfuls.
Distilled water enough to fill a six ounce bottle.					

One teaspoonful frequently when the crave is on, and in a wine-glassful of water.

Cold sponge bath also should be taken once or twice a day.

Enlargement of the Brain. — *Hypertrophy.*

THIS is chiefly a disease of childhood. It consists in an unnatural growth of the brain. Sometimes the skull grows with it, and there may not be any, or only slight, symptoms of disease.

The complaint is sometimes congenital, — the child being born with a head far above the natural standard of size. Sometimes a child's head, from this disease, will reach the size of an adult's by the time it is five or six years old. This is not necessarily a *disease*, though children that suffer from it are very apt to die finally of some affection of the brain.

Symptoms.— Dullness of intellect, indifference to external objects, great irritability of temper, inordinate appetite, giddiness, and an habitual headache, which at times is very severe. In addition to these, there are, at times, convulsions, epileptic fits, and idiocy. There is a peculiar projection of the parietal bones, which serves well to distinguish this disease from acute hydrocephalus.

Treatment.— As far as possible, suspend and repress all exercise of the mind. Take the child from school as soon as the disease is discovered, and put it to the most active muscular exercise in the open air. The moment there is any excitement of the brain, or heat on the top of the head, apply cold water, ice, or cold evaporating lotions. If, as the child grows up, the signs of mischief increase, the diet must be simple, and carefully regulated. Bread and milk only is sometimes advisable.

Shrinking of the Brain.— *Atrophy.*

THIS is a disease in which the volume of the brain is diminished. There are two forms of it; one is congenital, the brain not being properly developed at birth; the other occurs in consequence of disease either in the membranes or the arteries. The symptoms are not distinguishable during life from those of other brain affections, and therefore it can only be treated according to general principles.

Water in the Head.— *Acute Hydrocephalus.*

THIS, like enlargement of the brain, is likewise a disease of childhood, and often attacks *scrofulous* children.

Being an inflammatory disease, it is important to have early notice of its existence, and, if possible, to be aware of its *approach*; which we may be, frequently, by observing the following *premonitory*

Symptoms; namely, a disturbance of the digestive functions, indicated by a capricious appetite, — the food at one time being disliked, at another devoured greedily; a foul tongue, offensive breath, enlarged and sometimes tender belly, torpid bowels, stools light-colored from having no bile, or dark from vitiated bile, fetid, sour-smelling, slimy and lumpy. The child loses its healthy look, and grows paler and thinner. Its customary spirit and activity are gone; it is heavy, languid, dejected; it is fretful, irritable, uneasy; and sometimes is a little tottering in its gait.

After these warning symptoms, the disease may begin in one of three ways: —

The pains in the head become more severe and frequent, and are sharp and shooting, causing the little patient to wake and shriek out. As the drowsy state advances, the shrieking gives place to moaning. Beside these symptoms, there are stiffness in the back of the neck, pain in the limbs, great tenderness of the scalp, vomiting, sighing, intolerance of light, knitting of the brows, increased disturbance of stomach and bowels. This stage may last ten to fourteen days, the child growing more weak and peevish.

Another form of attack is marked by acute pain in the head and high fever, convulsions, flushed face, brilliant eyes, intolerance of light and sound, pain and tenderness in the belly, stupor, great irritability of stomach, causing retching and vomiting upon every attempt to sit up in bed.

The third mode of attack is very insidious, — the early symptoms being mild and hardly noticeable, or not even occurring at all. In such case, the convulsions or palsy come suddenly, without notice, bringing swift and unexpected destruction. This has sometimes been called *water-stroke*.

The First Stage is the period of *increased* sensibility and excitement, caused by inflammation, in which the pulse is quick and irregular.

The Second Stage is one of *diminished* sensibility, or lethargy, during which water is effused upon the brain, and the pulse is slow.

The Third Period is one of palsy and convulsions, with squinting of the eyes, rolling of the head, stupor, and a rapid, thread-like pulse.

Treatment. — The first or inflammatory stage of the fever is very important, and must be controlled for five or six days. Scammony and croton oil (33) may be chosen for this purpose. Apply cold water, ice, etc., to the head. Use tinct. veratrum viride or (355).

In the second stage, put blisters upon the back of the neck, and one upon the bowels if they are very tender.

In the third stage, effusion having taken place, use the warm bath, or the vapor bath, — also digitalis, squills, and iodide of potassium, (144), (128), (302), (130). The effusion, if permanent, may be drawn off.

Confine the child to a darkened room, of moderate temperature, — excluding all noise and causes of excitement, and let him lie upon a hair mattress, with his head somewhat elevated.

Diet. — Gruel only during the stage of excitement, — during that of collapse, it should be nourishing, but mild and easy of digestion, as beef tea, plain chicken or mutton broth, and animal jellies. At the same time, support the patient by the cautious use of the aromatic spirit of ammonia, ten drops every four hours, valerian, wine whey, and infusion of gentian, columbo, or quassia, (64), (66).

Dropsy of the Brain.—*Chronic Hydrocephalus.*

Acute hydrocephalus is an *inflammation*; *chronic* hydrocephalus, now to be considered, is a *dropsy*. It often begins before birth. It consists in the accumulation of enormous quantities of water within the brain, sometimes within its ventricles, at other times upon its surface. When it occurs soon after birth, it advances slowly and imperceptibly, — the enlargement of the head being the first thing noticed.

The skull being tender in infancy, it separates at the fontanelles, as the fluid accumulates, and the head, at times, attains an enormous size, — so great that the child cannot carry it upright, but lets it droop laterally upon the shoulder, or forward upon the breast.

As the disease advances, the senses become blunted, the child is deaf or blind, the intellect is weakened, perhaps idiocy appears, the flesh and strength pass away, convulsions and paralysis come in their turn, and a stupor is apt to occur which ends in death.

Treatment. — The remedies may be external, or internal, or both.

Internal Remedies. — These should be purgatives (33), (31), or diuretics and alteratives (302), (145), (144).

External Remedies. — Apply an ointment of the iodide of potassium to the scalp every night (185). A tight bandage applied over the whole head will sometimes have a favorable effect. Another expedient is to puncture the skull and draw off the water. Tapping the brain has effected a cure in many cases, and perhaps promises the most relief of any remedy we have. In newly-born children with this affection, it is the best means.

As may be expected, none of these remedies are likely to give the benefit desired, and an operative interference above proposed constitutes a risk which it is perhaps better to run even if it results in the death of the child, rather than have it become a hopeless invalid with epileptic convulsions and the other manifestations of an impaired brain.

Cerebro=Spinal Fever.

Definition. — This disease may be contracted by poisoned air and through the medium of fluids, and though markedly infectious, is not supposed to be contagious. The other names are spotted fever or cerebro-spinal meningitis. The disease is found among children and young adults more often than among the aged. It occurs suddenly in epidemics which cover a large territory and it does not appear to be referable to any known laws or atmospheric conditions. The death rate is exceeding high considering the number that have the disease, and this rate varies during different epidemics although there are different forms of severity.

Symptoms.—As a general rule the first symptoms are intense headache with pain in the back of the neck or through the extremities and chest, followed by a moderate fever without sweating. Vomiting, and delirium with convulsions are common symptoms. In a small portion of the cases, under fifty per cent, an eruption occurs, which gives the name of Spotted Fever to the disease. The bending back of the head on the neck making it impossible to bring the head forward is known as retraction of the head and is a very common symptom. Deafness, blindness and other complications are the result of irritation of the nervous system. The disease may be mistaken for typhoid fever early in its course, though the bowel symptoms in the latter disease are much more prominent.

Herpes or cold sores on the nose and lips are common in meningitis and very rare in typhoid.

Treatment.—Cold to the head by means of ice bag should be at once resorted to. The diet should be light and sedatives such as the bromide of soda or chloral in 20 grain doses by the mouth and even morphia in one-fourth grain doses will be needed to relieve and quiet the nervous irritation.

Diseases of the Spinal Cord.



FIG. 84.

THERE are few diseases more interesting, as a study, than those which affect the nervous cord which runs through the centre of the back-bone. This cord is a continuation, an appendage or tail of the brain. (See Figure 84.) It is the seat and centre of certain nervous functions, called *reflex*, by which so many movements take place which are not under the control of the will.

In order that we may feel what takes place in any part of the body or limbs, and that the will may have power to move such part, it is necessary that nervous matter should be continuous and unbroken between the part in question and the brain.

If the spinal cord be cut, broken, or crushed at any point, all those parts which receive nerves from *below* the injury, lose their power of motion and their feeling. When the injury is in the upper part of the cord, the breathing and the circulation will stop, and death is the immediate consequence. If the middle portion of the cord be the seat of the injury, the bowels and other organs may lose their motion and feeling; if the lower portion, then the lower limbs only will be the sufferers.

Disease or injury in the upper part of the cord is therefore much more dangerous than the same thing occurring in the lower.

Inflammation of the Spinal Cord.

THE membranes which surround the cord may be inflamed just as those are which enclose the brain; but as the cavity running through the spine is quite small, there cannot very well be inflammation of the membranes without its involving the cord at the same time.

Symptoms. — Pains, often intense, running along the spine, extending out into the limbs, and made worse by motion. They are similar, in some respects, to rheumatic pains. There is rigid contraction, and sometimes violent spasms of the muscles of the back and neck, — so great, at times, as to bend the body back into the shape of a hoop; also a feeling of constriction in various parts, as if they were girt by a tight string; a sense of suffocation; retention of urine; a most obstinate constipation and frequent chills or rigors. The pain which is felt along the cord is aggravated by rapping upon the spine, but not by pressure.

The above symptoms are supposed to be the result of inflammation predominating in the membranes. When its seat is more particularly in the substance of the cord, the symptoms are, — convulsive affections of the head and face, inarticulate speech, loss of voice, squinting, and difficulty of swallowing, if the extreme upper part of the cord is inflamed; if the disease be slightly lower, difficulty of breathing, irregular action of the heart, and tightness of the chest; if lower still, vomiting, pain in the belly, sensation of a cord tied round the abdomen, pain and heat in passing water, retention of the urine, inability to retain the urine, desire to go to stool, or involuntary stools.

Spasm and stiffness, then, are the results of inflammation of the membranes; convulsions and palsy, of the same affection of the cord.

Treatment. — When the inflammation is acute, apply a few leeches or wet cups along the sides of the spine. In chronic inflammation, powerful friction, or mustard draughts, stimulating liniments (190), or plasters, will generally answer the purpose.

Apoplexy.

APOPLEXY is that condition in which all the functions of animal life are suddenly stopped, except the pulse and the breathing; — in which there is neither thought, nor feeling, nor voluntary motion; in which the person falls down suddenly, and lies as if in a deep sleep.

Modes of Attack. — There are at least three ways in which this terrible disease may make its assault.

The First form of attack is a sudden falling down into a state of insensibility and apparently profound sleep, — the face being generally flushed, the breathing stertorous or snoring, the pulse full and not frequent, with occasional convulsions.

From this mode of attack some die immediately, others get entirely well, and others get off with the exception of paralysis on one side, or the loss of speech, or some one of the senses.

The Second form of attack begins with sudden pain in the head. The patient becomes pale, faint, sick, and vomits, — has a cold skin and feeble pulse, and occasionally some convulsions. He may fall down, or may be only a little confused, but will soon recover from all the symptoms, except the headache, — this will continue, and the patient will sooner or later become heavy, forgetful, unable to connect ideas, and finally sink into insensibility, from which he never rises.

This mode of invasion, though not appearing so frightful as the first, is of much more serious import.

In the Third form of attack there is sudden loss of power on one side of the body, and also of speech, but not of consciousness. The patient retains his mind, and answers questions either by words or signs. This may be called paralytic apoplexy. The patient may either die soon, or get well, or live for years with imperfect speech, or a leg dragging after him, or an arm hanging useless at his side.

The Persons Attacked are apt to have large heads, red faces, short and thick necks, and a short, stout, square build, though it occurs often among those who are thin, pale, and tall. The tendency to it increases in advanced life.

The Forerunners of apoplexy are headache, vertigo, slight attacks of palsy, double vision or seeing two objects when there is but one, faltering speech, inability to remember certain words, sometimes a sudden forgetfulness of one's own name, a frequent losing of the thread of ideas attempted to be pursued, and occasionally an unaccountable dread, for which no reason can be given.

Exciting Causes.— Whatever hurries the circulation of the blood, as strong bodily exercise, is an exciting cause. So are all those things which cause the blood to flow towards the head, as coughing, sneezing, laughing and crying, straining at stool when costive, lifting heavy weights, singing, and playing on wind instruments. To these may be added, exposure to the sun, the bad air of crowded rooms, holding the head down, or turning it around to look backward, tight cravats worn about the neck, and exposure to severe cold.

Treatment.— If the patient have the appearance of suffering from fulness of blood in the head, as evinced by redness and turgescence of the face and throbbing of the temporal arteries, and if the pulse be full and hard, feeling like a tense vibrating rope under the finger, place him in a half-recumbent posture, with his head raised; loosen his clothes, particularly his neck-cloth and shirt collar, and whatever may press upon the neck, and then as quickly as possible apply cold wet cloths to his head, changing them often. Ice is still better, if it

may be had. Apply wet cups to the nape of the neck, and mustard draughts to the soles of the feet,—at the same time applying tight ligatures around the limbs, to prevent the blood from returning rapidly in the veins. The ligatures should be gradually removed when the patient recovers his consciousness. Also administer a stimulating, purgative injection (246), and place two drops of croton oil, rubbed up with a little pulverized loaf sugar, far back upon the tongue. Repeat the injection every fifteen minutes, till the bowels are thoroughly moved. This is one of the few diseases suitable for bleeding.

If the patient be old, and the pulse small and feeble, with no fullness or beating of the temporal arteries, or swelling of the veins of the neck and forehead, the countenance being pinched, and the skin bloodless and cold, the cupping, purging, and applying the ligature must be omitted. In this case it will be better to apply warm flannels and hot bricks to the surface, and administer ammonia and camphor (283), (135) internally.

To prevent future attacks, gentle tonics should be used, and the skin should be kept healthy by daily bathing and friction. The bowels must not be permitted to become costive. The diet should be light, chiefly vegetable, and almost entirely so in hot weather. The food should be well chewed. The mind should be kept cheerful and hopeful, and free from great excitement. The sexual passion should be restrained, and very rarely indulged. Intoxicating drinks should be abandoned, if used, and all tight cravats be discarded from the neck. Direct rays of the hot sun in summer should be carefully shunned. No food should be taken for three hours before retiring, and a mattress only, of some degree of hardness, should be slept upon,—the head being always well elevated. To these precautions, I would add dipping the feet every night before retiring in cold water; and, if any tendency to cold feet be experienced, dusting pulverized cayenne in the bottoms of the stockings.

Sunstroke.—*Coup de Soleil.*

Sunstroke results from the exposure of the body to excessive heat in the form of high temperature either of the sun's heat, from a furnace, or an exceedingly hot day from heat without direct exposure from the sun. There are two varieties, one known as heat exhaustion, where the temperature of the person's body is only slightly elevated, if at all, the other, and the more common one "heat stroke" or "sun stroke" in which the temperature of the body is raised many degrees. The symptoms are headache, dizziness and sometimes difficult breathing and thirst in the earlier stages, which if not recognized and means taken to prevent more serious troubles, at once go into unconsciousness, possibly accompanied by convulsions and spasms. If the fever cannot be reduced a serious condition occurs, followed probably by death inside of twenty-four hours. Even an improve-

ment may be followed later by a fatal meningitis. Persons who have once had sunstroke are also greatly afflicted by high temperatures which is intensified if the air is moist. It is needless to add a large portion of these cases die.

Treatment.—As is known the normal temperature is $98\frac{1}{2}$ degrees and the bath is used to reduce the temperature as near this as possible. Strip the patient, lay him flat on the floor or low bed and if possible apply ice; ice water or even a stream of cold water from a hose may be applied over the body, but the circulation must be kept up by an attendant rubbing the surface of the body to produce reaction so that the cooling of the body will be general and not entirely on the surface, as the congestion of the body with heated blood which would be caused if the rubbing was omitted would kill the patient. Ice should be applied to the head by means of an ice bag or some other means. Constant care should be taken that these measures while strenuous, should not be carried too far when the temperature once begins to drop, as when once started the patient immediately goes into collapse from the fever dropping too rapidly. Heart stimulants such as teaspoonful of aromatic spirits of ammonia with twenty drops of compound spirits of ether or strychnia in one-thirtieth grain doses may be given to support the heart. Alcohol should be avoided as it will only increase the congestion in the head; some good cathartic, as citrate of magnesia, should be given and the headache which often follows may be relieved by a twenty-grain dose of bromide with five grains of phenacetine added; the recurrence of high temperature should be watched for as it very often occurs, when cold baths will be again required, as a relapse is not at all uncommon.

Palsy. — Paralysis.

PALSY is a loss of the power of voluntary motion and feeling, one or both coming on, sometimes gradually, but more often suddenly, and extending at one time to a part, at another time to the whole body. It is a kind of station-house on the way to apoplexy, where passengers stop, not merely to stay over night, but to rest many days, or even years.

A great injury inflicted upon the brain, either by pressure or other cause, will induce a complete loss of motion and feeling, and this extending to the whole structure, brings likewise a loss of consciousness, which is apoplexy. A smaller degree of pressure, or a less injury upon the same brain, would occasion a loss of motion only, or, if a loss of feeling were experienced also, it would only extend to a part of the body, and consciousness would remain. This would be palsy. The disease is like apoplexy in kind, but stops short of it in degree.

Paralysis of One Side of the Body.—*Hemiplegia.*

WHEN palsy affects an entire half of the body, dividing it through the centre of the face, neck, body, etc., from head to foot, it is called *hemiplegia*. It is more nearly allied to apoplexy than any other form of the disease, and is generally ushered in by pretty well-marked apoplectic symptoms.

Symptoms.— Sometimes there are no premonitory symptoms ; but often before the attack there are flushed face, swelling of the veins about the head and neck, vertigo, a sense of fullness, weight, and sometimes pain in the head, ringing in the ears, drowsiness, indistinct articulation of words, or even loss of speech, confusion of mind, loss of memory, and change of disposition, — amiable persons being made sullen and peevish, and irritable ones mild and simpering. After the attack, the countenance generally acquires a vague expression ; the mouth is drawn to one side ; the lower lip on the palsied side hangs down, and the spittle dribbles away. The speech is altered, and the mind is generally impaired.

In some instances, the patient recovers in a longer or shorter time ; in others, little or no improvement takes place, and the patient, after remaining helpless, often for a long time, dies either from gradual exhaustion, or suddenly from apoplexy.

Causes.— Hemiplegia and paraphlegia are caused by pressure upon the brain, by the effusion upon it of blood or water, by a tumor, by mechanical injuries, by the striking in of eruptions, and by intemperance in eating and drinking. Paraphlegia often results from disease or injury of the spinal marrow.

Treatment.— In so many cases does the administration of iodide of potash give greater or less relief to different diseases of the brain resulting in paralysis that its use is recommended. It must be persisted in for weeks and months. The doses need not be excessive, and five to ten grains in a half glass of water or milk a day and continued some time will often be followed by improvement. There are other preparations of similar nature recommended from time to time but all depend upon the amount of iodine which can be absorbed by the system.

Paralysis of Lower Part of Body.—*Paraplegia.*

THIS form of palsy divides the body *transversely*, at the hips, and confines itself to the lower extremities, and to the parts about the pelvis.

Symptoms.— When it arises from affections of the brain, it is attended by pain in the head, giddiness, drowsiness, dimness of sight,

and impaired memory. Numbness is sometimes felt in the upper extremities as a forerunner of this form of palsy. At first there is a slight stiffness and awkwardness of the motion of the legs, which continue to increase till a cane is needed to balance the body and make it steady. From a paralysis of the neck of the bladder, the stream of urine grows more feeble, and finally dribbles away involuntarily. The bowels are for a time costive, but when the circular muscle which closes the fundament becomes palsied, the feces pass without consent of the will.

When disease of the spinal cord is the cause of the complaint, it is apt to come on gradually; languor and weakness are felt in the knees, the legs are not easily directed in walking, — being thrown across each other, causing tripping and stumbling. By degrees the loss of power increases in the thighs and legs, until at length the whole lower extremities become palsied and useless.

Local Palsy.

PALSY is called *local* when it is confined to a single limb, or muscle, or locality. One of these forms is called *facial* palsy. It affects one half the face only, and is a good specimen of these affections. It removes all power of expression from one half of the face, and leaves the features still, blank, and unmeaning. With the affected side of the face, the patient cannot laugh, or weep, or frown, or express any feeling or emotion, while the features of the other side are in full play. Among the ignorant, who do not comprehend the extent of the evil, the drollness of the expression excites laughter.

Shaking Palsy.

THE nature of this form of palsy is well expressed by its name.

Symptoms.— The first symptom of this complaint is a weakness and tremor of the head or hand. In about a year the other hand, or the lower extremities become affected; and the patient begins to lose his balance in walking. Then the trembling becomes perpetual; no limb or part remains still. Reading and writing are no longer possible, and the hand cannot even carry the food to the mouth. The balance cannot be maintained in walking; there is a tendency to fall forwards, and to avoid it, the patient is obliged to run or move quicker, and upon the toes.

At a later period, the tremor continues during sleep; there is increased weakness; the body is bent forward, the speech becomes indistinct, swallowing difficult, and the bowels torpid. At last the urine and feces pass involuntarily, and delirium and coma bring life to a close.

Lead Palsy.

IN this disease the muscles of the forearm are palsied, so that the wrists "drop," as it is said, and the hands hang down when the arms are stretched out. It is caused by the gradual introduction of lead into the system. It is a disease, therefore, peculiar to painters,—particularly those who use carbonate of lead, or white lead, as it is called. It is generally the sequel of painter's colic.

Treatment.—A sudden and severe attack of palsy requires the same treatment as apoplexy. When the bowels are obstinately constipated, they must be moved by scammony and croton oil (31), (32) and by injections (246).

When all the symptoms of determination of blood to the head have disappeared, and the disease has become strictly chronic, exciting remedies must be employed, as frictions, stimulating liniments, blisters, stimulating baths, cold affusion, and electricity. Among the internal remedies, strychnine has the best reputation (85), (86). The tincture of the poison oak is well recommended (284). An alterative (145) should likewise be used.

Apply counter-irritants along the track of the spine, such as blisters, the moxa, the compound tar-plaster, and the pitch-plaster.

At first the diet should be light; but after the more active symptoms have disappeared, it should be nutritious, and sometimes stimulating. Flannel underclothes should always be worn next the skin.

For lead palsy, the best remedies are iodide of potassium, or sulphuret of potassium. The dose of either of these is from three to ten grains, three times a day, dissolved in water, one ounce of the salt to six ounces of water, and taken in simple syrup. The affected limb should also be soaked an hour each day in a gallon of water, with half an ounce of sulphuret of potassium dissolved in it.

Hydrophobia. — *Rabies*.

THE bite of the mad dog, or mad wolf, or other hydrophobic animal, is the most dangerous of all poisoned wounds, because it is apt to be followed by a disease for which there is no certain remedy. Fortunately, the human subject is not as susceptible to the effects of the poison as some of the lower animals; for only about one-tenth of those bitten are attacked by hydrophobia.

Symptoms.—The interval between the bite and the appearance of the disease varies from twelve days to two months. The wound heals like any other bite of a similar animal. After a time, the scar begins to have darting, lancinating pains, which, if it be a limb that was bitten, run up towards the body. Sometimes it feels cold, or stiff, or numb, or becomes red, swelled, or livid, and occasionally breaks open, and discharges matter. The patient feels a strange anxiety, is depressed in spirit, has an occasional chill, and disturbed

sleep, and spasmodic twitches. The pulse is above its natural state, both in quickness and strength, and the nervous system is very impressible. The senses are all more acute; trifling noises produce agitation, and the eyes are so disturbed by the light that the patient sometimes hides himself in a dark place. The appetite is lost. This is the first stage.

Thirst now appears, and he attempts to drink. But the moment water approaches his mouth, a spasmodic shudder comes over him; he pushes it back with horror; the awful fact of his condition flashes upon him; and he cries out, "What I have dreaded has come upon me."

Thenceforward he can swallow no fluids; complains of pain and stiffness about his neck; is thrown into convulsions by the sight of water, or even the sound of liquids agitated in a vessel, or by a breath of air blowing upon him, by a bright light, or by the glare of a mirror. His throat is full of a viscid, glary matter, which he continually tries to clear away. Thus, between convulsions, in which he struggles, and sometimes strives to bite his attendants, and comparative stillness, during which he suffers great depression of spirits, he passes three or four days, and then dies either in a spasm, or from exhaustion.

Treatment.—Immediate suction of the wound, with care being taken that the person whose lips are used has no abrasion or wounds there, followed by disinfection is certainly the best method, if resort cannot be had to some of the institutions where Pasteur injective treatment can be utilized. Disinfection may be carried out if the wound is a torn one, not a narrow and deep one, or in the latter case it would probably be better to cut away enough flesh so that the disinfectant may reach the bottom of the wound. The use of corrosive sublimate in the strength of one part to 500 of water applied to the wound for five or ten minutes and then a poultice of weak solution of one part to 3,000 of water applied and bound on. The corrosive tablet sold at all drug stores contains about 7 grains of poison, and dissolving one of these in a half pint of water makes a strength of one to 500; a strength 1 to 1,000 may be made by dissolving one tablet in a pint of water.

Some of the Western physicians declare the red chickweed, or scarlet pimpernell, to be an absolute remedy for this disease, and cite some quite remarkable cases of its success. Four ounces of this plant, in the dried state, are directed to be boiled in two quarts of strong beer or ale, until the liquid is reduced one half. The liquid is to be pressed out and strained, and two drams of laudanum added to it. The dose for a grown person is a wine-glassful every morning for three mornings. A larger dose is required if the disease have begun to show itself; and if the case be fully developed, the whole may be taken in a day. The wound is to be bathed with the same decoction. The medicine, it is said, produces profuse sweating. It is worth a trial.

Considerable has been said of late of a remedy used in some parts of Europe, and said to be effectual. It is the "golden cenotides" (*cetonia aurata*), or common rose-beetle, found in large quantities on all rose-trees. A similar insect is said to infest the geranium-plant. When collected, they are dried and powdered; and given in this form, relieve excitement (so it is said) of the brain and nerves, and throw the patient into a sound sleep.

Muscular and Nervous Derangements from Wounds.

IN some persons, a very small local injury will produce violent disturbance of the nervous system. Some will faint and be thrown into convulsions and vomiting from causes scarcely greater than the prick of a needle; and, before Morton gave the world the boon of ether, it was not very uncommon for persons to die under the knife of the surgeon. One of the most serious disturbances from wounds, of a nervous and muscular character, is

Locked Jaw.—*Tetanus*.

THIS is spasmodic contraction, with rigidity, or stiffness, of the voluntary muscles. Sometimes this rigidity is partial, at other times universal throughout the system.

Tetanus is produced by two causes, *exposure to cold* (idiopathic), and *bodily injuries*, particularly the *injury of a nerve* (traumatic tetanus). This last is the most frequent,—perhaps the only form of the complaint.

The Symptoms are long-continued, violent and painful contraction or cramp of the voluntary muscles. At first there is difficulty and uneasiness in turning the head, with inability to open the mouth easily,—then the jaws close gradually, but with great firmness; swallowing now becomes difficult, and a pain, starting from the breastbone, pierces through to the back,—probably caused by cramp of the diaphragm or midriff. The cramps now extend to the muscles of the body, the limbs, the face, the tongue, etc., which continue in a state of rigid spasm,—being swelled and hard in the centre,—till the disease yields, or the patient dies. At times the abdominal muscles are so tense as to make the belly as hard as a board. Occasionally the patient is drawn backward into the shape of a hoop, so as to rest on his head and heels (*episthotonos*); at other times he is drawn forward in the shape of a ball (*emprosthotonos*). All the contractions are attended with intense pain. It is the racking of the entire body with cramps like those which sometimes attack the calf of the leg. So violent are the contractions that the teeth are sometimes broken by them, and the tongue is often badly bitten. In the mean

time, the appearance of the sufferer is frightful. The forehead is wrinkled, the brow knit, the eye-balls motionless and staring, the nostrils spread, the corners of the mouth drawn back, the set teeth exposed, and all the features fixed in a ghastly grin.

The prevention of tetanus can be accomplished by thorough disinfection of all wounds, especially those due to gun-powder accidents and implements around stables and manure heaps.

In 1905 the number of cases reported following the July 4th celebration was 75 per cent. less than the previous year, owing to precautions taken. It is so fatal that somewhere about 70 and 80 per cent. of those who become affected die. The most valuable treatment is the injection under the skin by a competent person of the antitoxin of tetanus, but even this, to be successful, must be administered within a short time after the wound is made to prevent the poison from invading the nervous system and causing death.

Treatment.—At once upon the receipt of a wound which is suspicious the same treatment should be given as suggested for hydrophobia; on no account should the wound be closed over and allowed to heal in the early stages. If the disinfectants are not available it is much better to leave the wound exposed to the air, as the growth of these germs which is the cause of the disease is increased by exclusion of air. If the jaw becomes locked so that food cannot be taken, it may be necessary to feed the patient by means of a small rubber tube through the nostril or even the rectum, but a physician will, of course, have charge of the procedure. Ether and chloroform in desperate cases may be inhaled to ease the final struggle of the patient, or bromide of soda and chloral in large doses will also be useful.

Epilepsy.—Epileptic Fits.

THIS disease has been sometimes called the *falling sickness*, but generally passes under the more vague title of *fits*.

Symptoms.—The disease is characterized by a temporary loss of consciousness, strong spasms and intervals between the fits. The attack is sudden, generally without warning, and attended with a loud cry, when the patient falls down, is senseless and convulsed, struggles violently, breathes with embarrassment, has a turgid and livid face, foams at the mouth, bites his tongue, has a choking in the windpipe, and appears to be at the point of death. Presently, in from five minutes to half an hour, and by degrees, these symptoms diminish, and at length cease; and the patient falls into an apparent sleep. In a short time more he recovers, and is apparently well. These attacks come again and again, and at irregular intervals.

This is the worst form of the disease; there is another class of cases in which the symptoms are much lighter,—there being no turgescence of the face, no foaming at the mouth, no cry, no convul-

sions; but merely a sudden and brief suspension of consciousness, a fixed gaze, a feeling of confusion, or a totter, from all of which the recovery is speedy.

Causes.—These are numerous,—as worms, disturbance from indigestible food in the stomach and bowels, difficult teeth-cutting, nervous irritation, either direct or by sympathy, sexual excesses and masturbation, disease or injury of the brain or spinal marrow, gall stones in the excretory duct of the liver, stone or gravel in the kidneys and bladder, fright, distress of mind, passion, great loss of blood, and many others.

Treatment.—But little can be done during the fit, except to protect the patient from being injured by the violence of the convulsions and especially for unusual accidents that may happen while the victim is falling unconscious, such as burying the face in the pillow at night, choking due to the food stopped in the throat or falling of the body on hard substances causing breaking of the bones, even fracture of the skull. There is little fear that death will result. Cures are seldom obtained but the violence of the convulsions may be greatly diminished by proper treatment and the time occurring between attacks of greater length. The most important drug and the one tried which has given the largest number of happy results is the bromide of strontium, which drug as well as any chosen must be used over a long period of time and even after the improvement has been noticed. The use of the drug must be continued even over a matter of years in the dosage of 10, 20 and even 30 grains well diluted with water, three times a day, and in all probability an improvement may be expected. If as in a certain proportion of cases an attack is preceded by a premonition of its onset, the inhalation of the vapor of nitrite of amyl which can be purchased in pearls, and crushed in a handkerchief, the attack can be prevented.

In all cases, indeed, the diet should be carefully regulated, being light, nutritious, and easy of digestion. The sleep should be taken at regular hours, and daily exercise in the open air be insisted upon. The bowels must be kept regular, by the food, if possible; if not, by mild laxatives. Apply along the spinal column 195, once a day, rubbing it well in; also, now and then, mustard poultices.

In addition to these remedies, give pills of iron and quinine (72). one after each meal,—also oxide of zinc (270), which is one of our very best remedies. Of the pills, one should be taken three times a day. Bromide of sodium, 1 dram in 24 hours, mostly at bedtime.

We can seldom go amiss in giving medicine calculated to relieve nervous irritation, and to build up the general system. For this purpose, the valerianate of quinine, and the extract of black cohosh (79) are well adapted. Citrate of iron and strychnine (316), is a very valuable remedy.

It is said that a black silk handkerchief thrown over the face of a

person in a fit, will immediately bring them out of it. It is an experiment easily tried; and having seen it in a respectable medical journal, I give it for what it is worth. The bromides in large doses, long-continued, sometimes cure epilepsy (367).

Catalepsy. — Trance. — Ecstasy.

CATALEPTIC fits are simply what is known to all the world under the name of *trance*; and *ecstasy* is a modification of the same nervous disorder. It is a state in which the mind becomes so intensely absorbed in something outside of its earthly tenement, that it withdraws all control over the body, and all apparent connection with it, leaving it as if dead. There is a very light ticking of the heart, just perceptible to a cultivated ear, but the breast does not rise and fall with breathing, the features are all inexpressive and still, the eyes are wide open and motionless, apparently staring after the departed intellect; and the body and limbs are entirely passive,—remaining unmoved where they are placed by others, however tiresome and uncomfortable the position. In a word, a person in catalepsy is, in appearance, like a marble statue, or like a human body suddenly turned to stone, or, like Lot's wife, to a pillar of salt. There is as little feeling, or thought, or consciousness, as if the bowl had been instantaneously broken at the cistern, and the apparent death were real.

It is a peculiarity in this disease that the patient, on recovery from a fit, takes up the thread of conscious life just where it was broken by the attack. Thus, if she were lifting a cup of water to the mouth, she would hold it steadily, with the mouth open, till the return of consciousness, and then place it to the lips, as if no interruption had occurred; or, if conversing, and in the midst of a sentence, the unfinished words would be uttered at the end of the fit, even though it should last many days.

Persons in a cataleptic fit have much the appearance of one in the mesmeric state; and the statue-like position in which an attack fixes a patient, reminds one of the manner in which the psychologists, so called, will arrest a man under their influence, and make him immovable, with one foot raised in the act of stepping.

The disease attacks females much more often than males.

The premonitory symptoms are much like those of epilepsy, and the treatment should be about the same.

Saint Vitus's Dance.—Chorea.

THIS disease is chiefly confined to children and youth between the ages of eight and fourteen. But few cases occur after puberty.

Symptoms.—The complaint affects mostly the muscles and the limbs. It excites curious antics,—such as we should suppose would occur if a part of the muscles of voluntary motion had hatched a mimic rebellion, broken away from the control of the will, and in

sheer mischief and wantonness, were tripping their fellow muscles, and playing tricks with the patient. A few of the muscles of the face or limbs begin their mischievous pranks by slight twitches, which, by degrees, become more energetic, and spread to other parts. The face is twisted into all kinds of ridiculous contortions, as if the patient were making mouths at somebody. The hands and arms do not remain in one position for a moment. In attempting to carry food to the mouth, the hand goes part way, and is jerked back, starts again, and darts to one side, then to the other, then mouthward again; and each movement is so quick, and nervous, and darting, and diddling, that ten to one the food drops into the lap. If the attempt be made to run out the tongue, it is snatched back with the quickness of a serpent's, and the jaws snap together like a fly-trap. The lower limbs are in a state of perpetual diddle; the feet shuffle with wonderful diligence upon the floor, as if inspired with a ceaseless desire to dance.

It is supposed by some that the disease consists in a partial palsy of a part of the muscles. The will in that case not being able to control the palsied muscles, when it commands the others to move, their action is not balanced, and they twitch the face and limbs into all the capricious and fantastic shapes we witness.

Others, and probably with more truth, hold that the seat of the disease is in the cerebellum or little brain. It is supposed to be one of the functions of this organ to preside over and regulate the locomotion,—that it holds the office of chief engineer, and that its duties are to keep the muscles in subjection to the will. The combined and consenting action of several muscles is needed for every movement. It is the business of the cerebellum to maintain this oneness of purpose and action—to see that no muscle flinches so as to disturb the harmony of the movement. When the cerebellum is diseased, all is confusion,—just as the locomotive runs from the track when the engineer is smitten with palsy.

The disease is not dangerous, but when it continues for many years it is apt to weaken the mind, and it sometimes very nearly destroys it.

Causes.—Whatever excites and weakens the nervous system, as powerful emotions of the mind, overworking the mind, reading exciting novels, eating too much meat, fright, striking in of eruptions, self-pollution, etc.

Treatment.—In the first place, remove all causes of excitement. Take the patient from school, and require some sort of cheerful outdoor exercise, daily. Take away all books, and be careful not to do anything to occasion anger or fear, or any kind of injurious excitement. Apply spinal ice-bags gradually and regularly.

In the second place regulate the diet—making it more animal and stimulating if it has been too low, and more vegetable and cooling if it has been too high.

In the third place, if the above changes have not been sufficient for the purpose, open and regulate the bowels with some gentle physic (30), (34) for a few days.

Iron in the form of tincture of the chloride of iron, 10 drops in water taken through a tube after meals, and arsenic in the form of Fowler's solution must be used for the anæmia, which is so often present. This latter drug is a strong solution of arsenic and must be used with great care, given in a dose for a young child 2 or 3 drops well diluted with water three times a day, gradually increasing a drop a day up to 8 to 10 drops three times a day, which is the maximum amount; it is not safe to increase more. The danger of poisoning must be looked for, such as a puffiness about the eyes and nose, or pains and cramps in the stomach. They show that the patient is getting a little more than is sufficient. The drug should then be cut down about half and continued at the last amount or entirely stopped. If there is a rheumatic history the salicylate of soda in 5 to 10 grain doses three times a day must be used. Next to arsenic, sedatives, such as bromide of soda or hyoscyamus or better than all the fluid extract of *cimicifuga* in the doses of half a teaspoonful diluted with water twice a day often proves a help.

To these remedies should be added the shower-bath, beginning with tepid water, and making it a little colder every day. If the shower-bath frightens the patient, or is not otherwise well borne, take the sponge bath.

Chronic Chorea.

THIS can hardly be said to amount to a disease. It consists rather in uncouth tricks, arising from some slight disorder of particular muscles, and grown into a fixed habit, such as shaking of the head every three to twenty seconds, repeated squinting of the eyes in connection with a peculiar knitting of the eyebrows, wrinkling of the nose, shrugging of the shoulders, lifting the ears up and down, or even moving the whole scalp back and forth. These movements are commonly made without a consciousness of it; and generally there is no power to suspend them without a painful effort which cannot be easily continued.

No medical treatment is of any avail. These tricks can only be corrected by great watchfulness and effort on the part of the person suffering from them, and in many cases, not even by such means.

Cramps.

CRAMP is experienced in the calves of the legs, the thighs, the stomach, the breast, the womb, etc. It is a very painful, sudden, and violent contraction of one or more muscles. The part is sometimes, as the phrase is, "drawn up into knots." When it attacks the stomach, it is a very dangerous affection. Women are subject to it about the third or fourth month of pregnancy.

They occur more frequently at night as the result of over-fatigue and indigestion during the day. These spasmodic contractions often occur in the abdomen and are accompanied by diarrhœa due to indigestion. Abdominal cramps are also a symptom of locomotor ataxia and other spinal diseases. The cramp of swimming is often due to an over-straining of some one group of muscles not hitherto much used, the sudden fatigue causing cramp. They may be also of nervous origin. Rheumatism is not infrequently the sole cause of painful muscular spasms.

Causes.— Drinking cold water when very hot and perspiring, exposure to damp night air, debility, indigestible food, and excesses in eating and drinking, and particularly over-straining the muscles.

Treatment.— Moderate the excessive labor and straining of the muscles which produce the cramps. When an attack occurs in the legs, tie a cord or handkerchief tight around the leg above the affected muscle. This will generally produce instant relief. Also briskly rub the parts with hot water, alcohol, ammonia, spirits of camphor, paregoric, or laudanum.

When it occurs in the stomach, apply warm fomentations, or what is better, a mustard paste (165). Take hot jamaica ginger or neuro-pathic drops. The bowels, if confined, should be opened with an injection.

Cramps of the limbs which afflict women in the family way, can only be mitigated, not cured, till after confinement. As a palliative, high cranberry bark, scullcap, etc. (87), will be found useful.

Pain of the Nerves.— *Neuralgia*.

THIS disease affects one tissue only,—the *nervous*; and has one symptom,—*pain*.

In *apoplexy*, the nerves, rendered powerless and senseless by an external force, are like a man under a bank of earth which has slid down upon him. In *palsy*, they are suddenly bereft of feeling and motion by a blasting scourge within,—as one is smitten down by a pervasive charge from a magnetic battery. In *epilepsy*, the nerves are grasped and for a time held senseless by an unseen power, in which they struggle, as a man strives in the folds of the anaconda. In *catalepsy*, they are suddenly stiffened into senseless strings, for such automatic use as the bystander may, for the time, choose to make of them. In *chorea*, they are set to dancing by an invisible exhilaration, as a man is suddenly crazed by brandy.

In *neuralgia*, the nerves are neither crushed, nor collapsed, nor restrained for a time, nor stiffened, nor exhilarated. They simply have their sense of feeling intensely exalted; they are filled with *pain*. The pain is generally of a peculiarly darting, piercing character. The patient sometimes calls it tearing pain. It comes on in sudden paroxysms, with intervals of freedom between. The attacks are some-

times like an electric shock, and are so agonizing as to bring a temporary loss of reason. Occasionally there is great tenderness of the parts affected, and some fulness of the blood-vessels in the neighborhood; but generally the signs of inflammation are all absent, except pain.

Neuralgic pains occur in almost every part of the system. One of the most familiar forms of the disease is known under the name of

Tic Douloureux.

It occurs in those branches of the fifth pair of nerves which go to the face. (See Fig. 85.) Sometimes one, sometimes all of the three branches are affected, but more often the middle branch only. When the upper branch is the seat of the disease, the pain is in the forehead, the brow, the lid, and sometimes the ball of the eye. The eye is generally closed during the pain, and the skin of the forehead is wrinkled. When the affection is in the middle nerve, the pain is preceded by a prickling sensation in the cheek, and twitching of the lower eyelid. Soon it spreads in quick and piercing pangs over the cheek, reaching the lower eyelid, the sides of the nostrils, and the upper lip. If in the lower branch, it sends its lightning shafts to the chin, the gums, the tongue and even up the cheek to the ear.

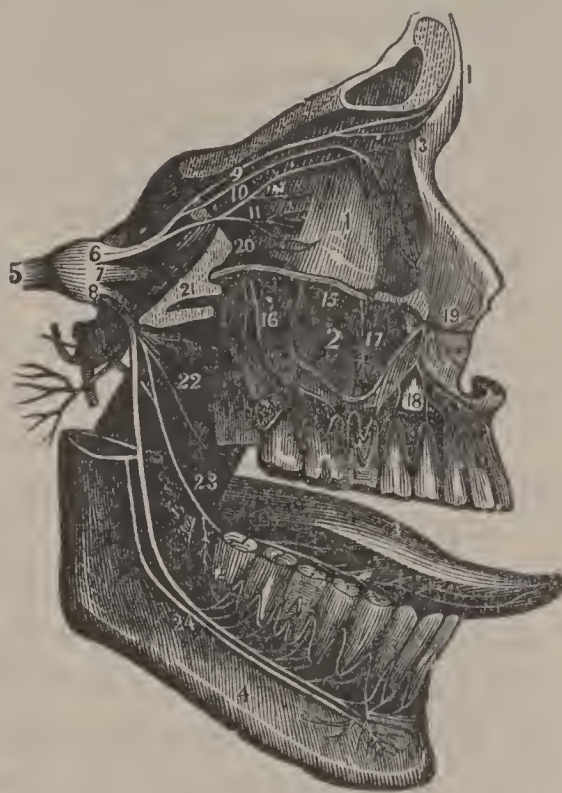


FIG. 85.

Face-Ache.—There is a species of nervous pain called *face-ache*, which does not quite amount to tic douloureux, but is nevertheless very afflictive. It occurs principally in the jaw, which seems to be filled with pain. No one spot seems to be more affected than another. From the jaw the pain often goes to the whole head, but it has not the stabbing intensity which generally characterizes neuralgia. It often proceeds from defective teeth.

Hemicrania.

THIS is a neuralgic pain, confined to one side of the head,—generally the brow and forehead. Sickness of the stomach often attends it, and in many cases it is periodical,—coming on at a certain hour every day, and lasting a given time, and then passing away.

It may be caused by whatever debilitates the system, as hysterics, suckling an infant too long, or low diet. In fever and ague districts it is frequently produced by miasm. In many instances, the cause cannot be discovered.

Sciatica.

THIS is a pain beginning at the hip, and following the course of the sciatic nerve. Occasionally it is an inflammatory complaint; sometimes is connected with an affection of the kidney; but frequently it is a purely neuralgic or nervous pain; and I have therefore thought it best to place it here, with nervous diseases.

Besides the various forms of neuralgia now noticed, the disease occurs, — sometimes with great severity, — in the female breast, in the womb, in the stomach, in the bowels, in the thighs, in the knee, and even in the feet. In many of these cases the disease is not where the pain is felt, but in the brain or spinal marrow, and consequently the true source of the complaint very often escapes detection. An excellent Episcopal clergyman in Northern New York, the Rev. M. B——, with whom I studied Latin and Greek preparatory to college, had a neuralgic pain in the knee so intense, persistent and exhausting, that the limb had to be cut off at the thigh to save his life.

Treatment.— This must be as diversified as the causes of the disease. For a general R use 368.

For tic douloureux, and some other forms, give internally, valerianate of ammonia (88); also 89, 90, 91, 92, 93, 316, and 84, as tonics.

For external use in tic douloureux, and other neuralgic affections, the prescriptions 188, 196, 197, 198.

For the face-ache, above mentioned, muriate of ammonia (134), in half dram doses, is a very valuable remedy.

When the disease is caused by miasm, and has a periodic character, like ague, it must be treated with quinine (67), (79), and if there be a low state of the blood, iron (72), (93) must be given at the same time. The galvanic battery often acts like magic in neuralgia.

The shower-bath, exercise in the open air, and whatever else will build up the general health, must be used according to circumstances.

Neuralgic pain of various kinds often yields readily to some one of the many coal-tar products like phenanthrene, antikamnia and ammonol: say 10 grains of either every two to four hours according to the intensity of the pain. The last named product is quite harmless and produces no numbness or faintness which is said to follow at times the use of some of the others.

Avoid rich or fatty foods. Live on a plain nourishing diet. Take exercise out of doors as much as possible.

Derangement of Mind. — Insanity.

MOST writers on this disease have attempted a *definition* of it. I have never seen one which suited me. Here is mine. *Insanity is a wrench of man's nature, which sets his intellectual and moral faculties awry in their relations with the external world.*

In a state of mental and moral health, he looks straight at the outward world, and sees it *as it is*; insanity gives him an angular connection with it and he sees it *as it is not*; its objects have all changed their relative places; objects at the right in the panorama of life have moved to the centre, or gone quite over to the left; while things at the top have gone to the bottom, and those in the lowest places have taken the highest. With the thoroughly insane, *the world has gone back to chaos*.

These persons have their sensibility very much altered and perverted. Errors of the senses and illusions cheat them. In many cases, they cannot read because the letters are mingled in a confused mass. They often do not recognize their friends, and regard them as strangers or enemies.

They become awkward in the mechanical use of their hands, and their touch loses the power to correct the errors of the other senses. Hence they are cheated in regard to the size, form, and thickness of bodies.

They are haunted, at times, with smells which have no existence, and they hear voices distinctly speaking to them from clouds, or from trees; and these voices have the familiar tones of a friend, relative, or enemy.

The insane lose the power of comparing ideas. They associate things the most unlike, and often in a ridiculous way.

They also lose the control of themselves, and come under the dominion of their passions; and then they will do acts which they themselves disapprove. One of strict integrity, of unblemished morals, and of excellent standing, becomes insane, and immediately steals what he does not want, makes infamous proposals, and indecent gestures, and is in every respect the opposite of his past self.

The insane often become averse to those who were previously among the most dear to them. For acts of kindness, they repay abuse. They fly from their best friends. This is the result of their fear and jealousy; for they are very cowardly and jealous. This alienation from friends is almost a characteristic of insanity, and is one of its saddest features. The moral affections are always disordered, perverted, or annihilated in insanity. So much is this a leading feature of the disease, that it is only when the insane begin to recover their moral affections, when they begin to wish to see their children and friends, to fold them once more in their arms, and to enter the family circle and renew its joys, that we can count upon any certain signs of a cure.

The insane have a thousand strong fancies in regard to themselves. One thinks himself inspired of God, and charged with the conversion of the world; while another, equally sincere, believes the devil has entered into him, and that the pains of hell are already taking hold of him, and he curses God, himself, and the universe. Still another is the "monarch of all he surveys," and much more; he governs the

world, and directs the stars. One has all knowledge, and affects to teach the wisest. Another is proud, and withdraws from his fellows, bidding them not to come into his presence without proper acts of homage,—calling himself, it may be, a king.

There are five kinds of insanity. I will speak of each of them briefly.

Melancholy. — *Lypemania*.

THIS is characterized by moroseness, fear, and prolonged sadness. The melancholic person is lean and slender, with black hair, and a pale and sallow countenance. His skin is brown or blackish, and dry and scaly. His physiognomy has a fixed appearance, the muscles of the face are drawn tight, the eyes are motionless, and directed to one point, the look is askance and suspicious, and the general expression is one of sadness, fear, and terror. He desires to pass his days in solitude and idleness. He walks as if aiming to shun some danger. His eye and ear are on the watch for evil.

These persons do not sleep much. They are kept awake by fear, jealousy, and hallucinations. If their eyes close, they see phantoms which terrify them.

Their secretions are disordered. The urine is either abundant and clear, or scanty and muddy. They sometimes retain their urine for days. One patient did not dare to make water lest he should drown the world, but was finally persuaded to it by the assurance that he would extinguish a fire which was devouring a city.

Insanity on One Subject.— *Monomania*.

THIS is a chronic affection of the brain, not attended by fever, and characterized by a derangement of the intellect, the affections, or the will, upon one subject only. The patient seizes upon a false principle, and draws from it injurious conclusions, which modify and change his whole life and character. In other cases the intellect is sound, but the affections and disposition being perverted, their acts are strange and inconsistent. These they attempt to justify by plausible reasoning.

Mania.

THIS is also a chronic affection of the brain, generally without fever. The countenance of the maniac is sometimes flushed, at other times pale. The hair is crisped; the eyes injected, shining and haggard. Maniacs dislike the light, and certain colors horrify them. Their ears are sometimes very red, and are disturbed by a tingling, and a rumbling sound. Noise excites and disturbs them. They suffer from false sensations, illusions and hallucinations; and their ideas come with great rapidity, and are confused and without order. Their

affections are in a state of turmoil, and their judgments are all erroneous.

Unlike the monomaniac, their delirium extends to all subjects. Their entire intellect, affections and will, are a chaotic wreck.

Dementia.

HERE is another chronic affection of the brain, without fever, in which the sensibility, the intellect, and the will, are all *weakened*. Demented persons have not the power to concentrate their minds on anything, and can form no correct notions of objects. Their ideas float after each other without connection or meaning. They speak without any consciousness of what they are saying.

Many of them have lost their memory, or, like old persons, they remember nothing recent,—forgetting in a moment what is just said or done.

The demented have neither desires nor aversions; neither hatred nor love. To those once most dear to them, they are totally indifferent. They meet friends long absent without emotion, and part from their dearest ones without a pang. The events of life passing around them awaken in them no interest, because they can connect themselves neither with the past nor the future; they have no remembrances nor hopes. Their brain is inactive; it furnishes no ideas or sensations. They are no longer active, but passive beings; they *determine* nothing, but yield themselves to the will of others.

They have a pale face, a dull eye, moistened with tears, an uncertain look, and a physiognomy without expression. They sleep profoundly, and for a long time, and have a voracious appetite.

Idiocy.

IDIOCY is in the condition in which the intellectual faculties have never been manifested. We are not to infer disease from it, any more than we infer it in the lower animals from the absence of intellect.

In idiocy there is no mind, because the brain is not large enough to be the organ of intelligence. It always dates back, therefore, to the beginning of life. Everything about the idiot betrays a defective organization. The demented person, the monomaniac, etc., once had intelligence; the idiot, never. They, in many cases, may be cured; he is hopelessly incurable. They had blessings which have been taken from them; to him, none were ever given. They were once the pride and hope of their friends; he, from his birth, was the smitten and blasted one of his family. He never reaches an advanced age,—rarely living beyond thirty years.

These remarks are sufficient to show the difference between idiocy and other forms of mental derangement. In the other forms of insanity there are brains enough, but they are *diseased*; in this there is no disease; the smallness of the brain is the primal and fatal defect.

This form of mental derangement is caused by a defective development of the brain. That the other forms are produced by *disease* of the brain, there can be no doubt.

Some have supposed insanity to be a *mental* disorder merely, having nothing to do with the body. They might as well suppose the delirium of fever to be a disease of the mind only.

Insanity is an unsoundness of the brain and nerves which proceed from it, in every instance. At first it is probably only excitement of the brain; but this, long continued, becomes a chronic inflammation. The brain and nerves of an insane person are undoubtedly sore, and hence the painful thoughts and feelings which afflict them. When the soreness is much increased, they are violent and furious; when it subsides, they are calm. In consequence of this inflammation and soreness of the brain, an insane person can no more think, or reason, or will, or feel correctly, than a person with an inflamed stomach can digest food well, or than one with inflamed eyes can see well.

Causes of Insanity.—Hereditary predisposition; painful subjects of thought or feeling long revolved in the mind; injured feelings which cannot be resented, mortified pride, perplexity in business; disappointed affection or ambition; great political, religious, or social excitements; sudden and heavy strokes of misfortune in the loss of property and friends; and in general, whatever worries the mind for a long time, and creates a deep distress, may be a cause of insanity.

But one of the most prolific causes, and worthy of special mention, is masturbation, or self-pollution,—a vice contracted by thousands of young people, both male and female.

Besides the above, I may mention several physical causes, as convulsions of the mother during gestation, epilepsy, monthly disorders of women, blows upon the head, fevers, loss of sleep, syphilis, excessive use of mercury, worms in the bowels, and apoplexy.

Chances of Cure.—Idiotism is never cured.

Melancholy and monomania are cured when recent, and do not depend upon organic disease.

Dementia is sometimes, though seldom, cured.

Chronic insanity, of long standing, is not easily cured.

Insanity which has been produced by moral causes, acting suddenly, is generally curable; if the causes have acted slowly and long, the cure is more doubtful.

Excessive study causes insanity which is hard to cure.

If caused or continued by religious ideas, or by pride, it is not often cured.

Insanity caused and maintained by masturbation is cured with great difficulty.

Treatment.—The treatment of the insane is now almost confined, as it should be, to public hospitals. In these institutions, all the means are provided which humanity has been able to devise, to lift

from these unfortunate beings the terrible shadow which is upon them. Here they have safety, comfort, recreation, friendly guardians, rest, and medicine.

They have safety from the annoyances which well-meaning but mistaken friends at home almost always commit in contradicting, and reasoning with, persuading, and threatening them; for only in these humane institutions has it been well learned that to do so is no wiser than to persuade, scold, or threaten a neuralgic pain in the face, an inflammation in the stomach, or a felon upon the finger. They are safe, too, from the impertinent scrutiny of neighbors, the hootings of unthinking boys in the streets, and especially from the causes, whatever they are, which have produced the disease. And so far, this is just the treatment they want,—no contradiction, no impertinent scrutiny from neighbors, no abuse in the streets, and a withdrawal of the causes which have produced the disease.

In these institutions, too, they have comforts. They have clean rooms, galleries, lodges, bathing-rooms, yards and gardens for exercise and walking, safe, quiet, well-aired bed-rooms, and clean and comfortable beds; cheerful dining rooms, and plain, wholesome, and nutritious food. And this, likewise, is the treatment they require.

They have recreation,—dances, cards, back-gammon, chequers, chess, billiards, nine-pins, walking parties, riding parties, gardening, and an indulgence in those arts of painting, music, drawing and architecture for which they may have a taste. And such recreations are powerful instruments in the cure of all disorders of the nervous system.

Here, too, they have friendly guardians, who have long studied their complaints, and have imbued their souls with a sympathy which goes down into the depths of their sufferings, and allies itself with all their sorrows;—men and women who are willing to act the part of guardian angels; to be their friends; who know how to gain their confidence; and who use the influence acquired by love, in leading them back towards health and happiness. And this, too, in curing the insane, is of great consequence, for none can do them good till they have their confidence, and this can be gained only by love and wisdom.

In these insane asylums, they find *rest*. When the brain is hot from inflammation, and they are raving from delirium, they are here withdrawn from the noisy crowd, and shielded from the rude shocks of the world. If need be, they are placed in solitary rooms, where silence spreads its soothing stillness through their excited brains. And it is of the greatest importance that the sore and torn feelings should rest; for rest allays excitement, and brings sleep; and without a proper amount of sleep recovery is not possible.

Finally, in these institutions, they receive the best *medical* treatment. They have warm and cold bathing, judiciously administered; they have simple cathartics when the bowels are bound, as salts, cas-

tor oil, and magnesia; tonics for debility, such as quinine, iron, cassia, columbo, chamomile; and quieting medicines for their excitement, such as opium, morphine, cicuta, hyoscyamus, belladonna, stramonium, scullcap, and valerian. Prescription 74 is a combination much used. Here, too, broth, gruel, and milk, are administered by the forcing pump, to such as take a fancy not to eat, — an expedient which has saved many lives. Fruits of all kinds, as strawberries, cherries, currants, plums, apples, peaches, and grapes, are allowed freely. Cold water, sweetened or otherwise, is the drink. To these things are added lively conversation, and whatever will divert the mind from reflection, and internal imaginings and revery.

Thus I have indicated, very briefly, the treatment which the insane receive in public institutions. That the chances of recovery in these humane retreats is much greater than at home, does not admit of a doubt. When it is not convenient to send an insane person to a hospital, the treatment should be as near like the one here sketched as circumstances will permit.

Hypochondria.

THE common names of this disease are *low spirits*, *spleen*, *vapors*, *nypo*, and *the blues*. It produces constant fear, anxiety, and gloom. Business, pleasures, the acquisition of knowledge, and all the useful pursuits of life, become insipid, tasteless, and even irksome to the hypochondriac. His mind is full of the belief that something dreadful is about to befall him. He is either going to be sick, or to die, or lose his property or friends. He has no mind to engage in any business, nor does he wish to go anywhere, or to see anybody. Night and day his spirits are down to zero, and his heart has a load too heavy to bear. He is wholly occupied with his troubles and his feelings. He thinks he has various diseases, and wears out his friends by talking of his sufferings. He feels of his pulse often, looks at his tongue in the glass, and several times a day asks a friend if he does not look pale or sick.

The external senses manifest symptoms of derangement as well as the thoughts, feelings, emotions, and passions. There are roarings in the ears, like a waterfall, or the noise of a distant carriage. Floating black specks, or bright sparks, are seen before the eyes. These indicate a slight fulness of the blood vessels, and perhaps, in some instances, sparks of electricity passing to or from the eye, and are in no proper sense subjects for the alarm they cause. At one time the person will feel as large as a barrel, at other times not larger than a whip-stock; the head will feel light or heavy, large or small. The skin will twitch in different parts, or feel numb, or have the sensation of spiders crawling on it. The smell and taste become perverted; the hypochondriac will smell odors and flavors, at times, where there are none.

These errors of the senses are all owing to some slight disorder of the organs of sense; and they are no more wonderful than that the mind should perceive personal danger, poverty, and death itself, when none of these things are impending.

These persons are subject to fainting turns, when the breathing will appear to stop, the body become cold, the face pale; there will be distress in the region of the heart, which will apparently stop beating, and the person will feel as if dying. At the same time the mind will remain clear. These nervous spells are alarming, but pass off without danger.

These persons become changed in their moral dispositions. They are jealous, take a joke as an affront, and feel the greatest distress at any apparent lack of attention or neglect on the part of friends. They put the worst construction upon the actions of friends. They are irritable, fretful, peevish, and fickle.

The complaint is distressing, but does not appear to shorten human life.

The seat of the disease is in the brain and nerves. It is caused by anxiety, care, disappointment, working the brain too hard, diseases of the liver and stomach, costiveness, sedentary habits, excessive venereal indulgence, and masturbation.

Treatment.— This disease is more easily prevented than cured. It would be almost entirely prevented in this country if in childhood we were all taught to be contented with humble competence, to love active labor, and to think it honorable, instead of struggling after wealth, and falling into unhappiness when it does not come.

Remedies.— Of all the remedies for this complaint, that which is most important is active employment out of doors. The human body was made for motion. Without it the blood cannot be distributed to the several organs. The senses, — the eye, the ear, the touch, — should be much in communion with nature. In this way they are strengthened. Nature is their great physician. Man is a creature of sensation; and if too much occupied with feelings, thoughts, and deep reflections, the nerves will be irritated, and begin to give deceptive sensations. A very nervous man should fly to some active occupation, if he would be rid of suffering.

The open, fresh air is very important to restore the system to soundness.

Temperance, both in eating and drinking, will do much for this class of patients, yet they are the very persons who eat largely, and they often fly to the excessive use of stimulants to drive away their sorrow. By so doing, they aggravate the disease.

Amusements are very important for hypochondriacs. Lively company, cheerful and witty conversation, with mirth and laughter, lively songs and instrumental music, are all desirable; and so are gunning, fishing, riding, billiard-playing, and travelling.

Never allow these patients to be alone, and to have time to brood over their misery. See that they go early to bed, and rise betimes in the morning. The warm bath, the cold shower, or sponge bath, with brisk friction, are not on any account to be omitted. The diet should be light, nutritious, and generous; but fats, acids, liquors, and coffee, must be forbidden.

But little medicine will be required. If there be costiveness, let cracked wheat be eaten; if this does not answer, a little rhubarb and bicarbonate of potassa (85), or leptandrin, podophyllin, etc. (36), may be given as required by the symptoms. A teaspoonful of calcined magnesia once a day, or the infusion of thoroughwort, drank cold, will often answer an excellent purpose. A bowl of warm motherwort tea, with a teaspoonful of spirits of camphor in it will do well in fits of fainting when there is a sensation of dying. A teaspoonful of sulphuric ether may be given at the same time. If there be debility, tonics are sometimes useful (50), (49), (54), (55).

Hiccough. — *Singultus*.

THIS is a sudden, jerking spasm of the midriff, occurring every few moments in bad cases, causing the air to be driven out of the lungs with such suddenness as to produce a noise something like the involuntary yelp of a puppy. It is generally caused by acidity of the stomach, which irritates the nerves distributed to its neighborhood, and is not difficult to remove; but when it occurs towards the close of some acute and grave disease, it is sometimes a sign that dissolution is at hand.

Treatment.— Startle the person suffering, by exciting surprise, or fear, or anger; or let a few small draughts of cold water be taken in quick succession; or, let the breath be held as long as possible. If the stomach is sour, take a teaspoonful of bicarbonate of soda, dissolved in half a tumblerful of cold water. To expel wind from the stomach, if it be present, take some warm aromatic essence of peppermint, ether, or compound spirits of lavender. But one of the most effectual remedies is *heavy pressure made upon the collar bones*. It is simple, and very effectual. Cocaine, one-eighth grain every fifteen minutes, is a very simple and often efficacious remedy.

Fainting. — *Syncope*.

FAINTING is preceded by a distress about the heart, a swimming of the head, sometimes sickness at the stomach, coldness of the hands and feet, and a loss of sight, or *a sense of things growing dark*. The breathing diminishes, the pulse becomes small, the face deadly pale, and the patient wilts down, and becomes more or less unconscious of what is passing around.

Whatever causes debility, particularly of the nervous system, will

predispose to fainting. Persons much weakened by disease, faint easily, especially when they attempt to stand still. When on their feet, such persons should keep moving. Fainting is sometimes induced by sudden surprises and emotions, by violent pains, by the sight of human blood, and by irritation of the coats of the stomach by indigestible food.

Treatment.— Lay the patient upon the back, with the head low; let fresh air into the room instantly, and apply gentle friction. Sprinkle a little cold water upon the face, and hold spirits of camphor, ether, hartshorn, or vinegar to the nose, — rubbing a little of the spirits of camphor upon the forehead, and about the nostrils. As soon as the patient can swallow, give a teaspoonful of compound spirits of lavender, with ten drops of water of ammonia in it.

Persons subject to fainting should not go into crowded assemblies where the air is bad; neither should they wear tight dresses, or allow themselves to get excited. Cold bathing, a well-regulated diet, and vegetable tonics, will do much to break up the habit.

Dizziness of the Head.— *Vertigo.*

THIS affection makes objects which are stationary appear as if moving, or as the phrase is, “turning round.” When seized with it, one will have a sensation as if falling, and objects about him will seem to be in motion.

It is caused by irritation of the nerves of the stomach in dyspepsia, by long application of the mind, by a weakened nervous system, by hysterics, and by a fulness of the blood-vessels of the head. When it proceeds from most of these causes, it is not dangerous; but when caused by impending apoplexy, it is a symptom of very serious import.

Treatment.— Find out the cause and remove that, and the dizziness will disappear. If it come from dyspepsia, eat lightly; if from costiveness, open the bowels either by coarse food, by daily cold water injections, or by some gentle physic. Avoid coffee, ardent spirits and late suppers, and take much exercise. Keep the feet warm, and the head cool. See to the liver and heart.

Disturbed Sleep.— **Nightmare.**— *Incubus.*

IN this complaint the sleep is disturbed generally by some frightful image. Whatever of an alarming character is presented to the mind in sleep, causes fear, or some other painful emotion, the same as when awake. And when the attempt is made to resist, or to flee from the danger, it is ineffectual, because the muscles are locked fast in sleep. The fear being increased by the inability to escape, the sleeper makes all sorts of horrible noises, indicating distress of mind. The danger seen is as real to the sleeper as if he were awake, and he

tries to do just what he would if awake. Sometimes the sensation is that some heavy weight, or perhaps some horrible monster, is upon the breast, nearly pressing the breath out of the body.

At times, the power of motion is not absent, and then disturbed dreams may cause one to talk, or to rise and walk, or run. Children will laugh or cry, or scream, which shows that their minds are agitated by different passions. Persons who indulge gloomy and troublesome thoughts in their waking hours are apt to be disturbed with sleep-walking, sleep-talking, and frightful dreams, as of falling down precipices, during the hours for repose.

There is nothing very wonderful about these disturbances of sleep. It is only necessary that there should be an unusual sensitiveness of the brain, or that a hearty supper, eaten late, should irritate the nerves of the stomach, and that distressing thoughts should be dwelt upon during the day and evening, in order to produce all the walking, talking, dreaming of hobgoblins, shipwrecks, fires and polar bears, which distress so many unfortunate sleepers.

In night-walking there is simply a little more wakefulness than in night-talking, and in this latter, more than when one falls from a high place, and in this perhaps slightly more than in real *incubus*, when one is in the greatest peril, but cannot move at all.

Treatment. — When sleeping persons groan, or make any noise indicating nightmare, *shake them*, and they will come out of it at once. As these troubles are often caused by a weakened state of the nerves, much out-door exercise should be taken. The diet should be simple, and well regulated. The suppers should be light, and never taken late. The evening should be spent in some pleasant amusement, which will drive away care; and the last hours of wakefulness be occupied with pleasant reflections. One afflicted with nightmare should not lie upon the back, nor with the hands over the head. Acidity of the stomach, and costiveness, if they exist, should be removed by neutralizing mixture.

Headaches.

THESE are not always caused by disorders of the brain and nerves, but they frequently are, and this seems the proper place to speak of them.

It is unwise ever to neglect headaches. They are sources of great suffering, and often lead to serious derangements of the health. In childhood they have a more serious meaning than in adult life. They often indicate the approach of scarlet fever, or measles, or of other diseases.

Headaches are more common among the civilized than the uncivilized; more frequent among females than among males; among those of sensitive feeling than among the more obtuse; among those who think much than among those who think little; among the sedentary than among the active.

Causes of Headaches. — They are dependent on various causes, as derangement of the circulating system, of the digestive organs, of the nervous system, etc. Among those dependent on disturbance of the circulation, are

Headaches from Eye Diseases. — Myopia, or near-sightedness; Hypermetropia, or far-sightedness; Astigmatism, or the inability to see equally well horizontal and vertical lines, as well as other irregularities of vision, are frequent sources of headache. These headaches are caused by overtaxing certain groups of muscles, or by fixing the eyes too long on one objective point, as experienced in prolonged study or reading, especially under unfavorable circumstances. These headaches are more or less similar in their symptomatology. The ache is generally dull, situated mostly in forehead and over eyes, but may also be spread from base of brain to the eyes; oftentimes it is accompanied by nausea, especially after prolonged use of eyes under improper conditions.

The treatment of these headaches consists in absolute rest of the eye, in case of overwork, and the fitting, by a competent oculist, of such glasses as will rectify the irregularity in the eye proper.

Astigmatism is a common source of headaches, and often is so insidious in its development as to escape attention. A rough test may be made by drawing several horizontal and several vertical lines in close proximity, and then placing at some distance (15 to 20 feet) from the eye. If either set cannot be as clearly seen without blurring as the other, you have good cause to suspect Astigmatism, and should consult an oculist. Do not dally with these eye-headaches, as you will be doing a permanent injury to your eyes.

Tea and Coffee Headaches. — In the nervous, and oftentimes in the gouty and rheumatic person, the use of tea or coffee will cause violent headaches. Tobacco likewise after prolonged use shows a tendency to headaches. These luxuries of life should be discontinued at once for at least one month. An extra strong cup of black coffee, to be sure, will stop the headache for the time being, but only adds fuel to the fire in the long run. Bromo-caffeine, as ordinarily sold by the druggists, taken in teaspoonful doses every half hour, will relieve the malady. We would strongly advise any one that has constant or periodical headaches, if he uses either tea or coffee, and especially coffee, to leave them off entirely for three months. It may be the sole cause, and if caused by tea or coffee, there is no possibility of their cure by medicines while you continue their use.

Plethoric Headaches. — These are dependent on a general fulness of blood. They are of two kinds. One is occasional, and lasts but a few hours. The other lasts for days or weeks. It occurs most often in the night or morning. Persons whose occupations require stooping have it most. A little dizziness is generally felt on rising up from a stooping posture. It is brought on by the bad air of

crowded rooms, and is attended by costive bowels, short breath, and a white furred tongue.

The persistent headache is accompanied by a sense of fulness, and sometimes of throbbing over the brows and temples, with a sensation of dizziness, and of mist before the eyes. The sufferer fears exertion and is constantly looking for a rush of blood to the head. Nature sometimes relieves this form of headache by a diarrhœa, or by bleeding from the nose.

There is another form of plethoric headache, differing slightly from the above, in which there is too much blood, and it is made too fast, but it does not circulate so rapidly. The muscles are not very firm, and the heart does not propel the blood with much force. This form of headache is connected with *congestion*.

Headaches of Indigestion. — These are caused either by taking improper articles of food, or by eating too much of those which are proper. The sensation in the head is not always a pain, but sometimes only a dull weight, attended by languor and disinclination for exertion; a tongue white in the centre, and pale red at the tip and edges; cold and numb fingers; slight nausea; languid and feeble pulse; dim and indistinct sight; eyes aching when employed; and difficulty in fixing the attention.

Sick Headache. — This has received its name from the constant nausea or sickness at the stomach which attends the pain in the head.

This headache is apt to begin in the morning, on waking from a deep sleep, or after sleeping in a close room, and when some irregularity of diet has been committed on the day before, or for several previous days. At first there is a distressingly oppressive feeling in the head, which gradually merges into a severe, heavy pain in the temples, frequently attended by a sense of fulness and tenderness in one eye, and extending across the forehead. There is a clammy, unpleasant taste in the mouth, an offensive breath, and the tongue covered with a yellowish-white fur. The sufferer desires to be alone, and in the dark. The hands and feet are cold and moist, and the pulse feeble.

Accompanying these symptoms, there is a depressing sickness at the stomach, which is increased by sitting up, or moving about. After a time, vomiting comes, and relief is obtained.

Bilious Headache. — This is most common in summer and autumn. It afflicts persons of dark complexion with black hair and melancholy dispositions. There are two kinds, one is due to an accumulation of bile in the system; the other, to a large secretion of bile.

In the first variety the skin is dingy and sallow, the spirits depressed, the bowels costive, and there is wind in the stomach, with a dull, aching pain on the right shoulder. The pain is in the forehead,

eyebrows and eyelids, and the "white of the eye" is a little yellowish. The tongue has a brown fur, and is cracked in the centre. There is a bitter taste in the mouth on waking in the morning, after restless nights, and frightful dreams.

In the second variety, which is due to an "overflow of bile," the symptoms are much like those of the first kind, but the pain is not so continuous. In addition to the symptoms named, there is a throbbing, rending pain in the head, the skin is hot and the face flushed, the limbs are sore, and there is a luminous halo or ring around objects looked at, and a feeling of giddiness.

Nervous Headaches. — These are more common among females than males. They occur most frequently among persons of high susceptibility, who are easily elevated, and as easily depressed. They are often connected with indigestion.

The pain is usually acute and darting, and is made worse by light, with a feeling as if the temples were being "pressed together," and a "swimminess" in the head. There is sometimes a sense of sinking, with a dread of falling, and great despondency and restlessness. The bowels are generally costive, and the sight dim. The pain comes on most commonly in the morning, lasts through the day, and abates in the evening.

Hysteric Headache. — There is a nervous headache dependent on the *hysterical* condition. It is generally confined to one small spot, frequently over the eyebrow, and is sometimes compared to a wedge or nail driven into the skull.

Headache from Exhaustion. — Still another species of nervous headache arises from extreme exhaustion, produced by great loss of blood, by diarrhœa, or by over-suckling. The pain is generally on the top of the skull, and is often compared to the beating of a small hammer on the head.

Brow Ague. — This is intermittent in its character, and is brought on by exposure to cold and moisture in damp and marshy districts; and in this respect is much like ague.

Megrims. — This is most frequent among females. It is often dependent on the same causes as Brow Ague, and is also produced by long and exhausting watching over sick children, distress of mind, and indigestion.

In both the above forms, the pain is intermittent, seldom lasting long, but being of a sharp, piercing character like that of *tic douloureux*. The pain of Megrims usually begins at the inner angle of the eye, and extends towards the nose; the parts being red and sore, and the eye-bull tender. In Brow Ague, pain and great tenderness cover an entire half of the head, compared by the patient, sometimes, to "an opening and shutting of the skull." It begins with a creeping sensation over the scalp.

Rheumatic Headaches.— These generally affect persons who have been subject to rheumatism, and are often brought on by uncovering the head when sweating. The pain is usually in the brow, the temples, or the back of the head, and is dull and aching, — rather an intense soreness than a real pain; and the painful part is excessively tender upon pressure. The skin is moist, but not hotter than natural.

Treatment.— In considering the treatment, I will take up the same order in which I have spoken of the different forms of headache.

Plethoric Headaches.— Not much medicine should be taken for these, if it can be avoided. A diuretic (131) may be taken twice a day, and an occasional dose of gentle physic at night, followed by (7) in the morning. This will generally give great relief.

Meat should be taken but once a day, and the whole diet should be spare, the appetite never being fully satisfied. All spirituous drinks, including distilled and fermented, should be let alone, and coffee likewise.

Much exercise should be taken in the open air. The hair should be kept short, and the head elevated during sleep. Bleeding at the nose, when it occurs, must not be too suddenly stopped. Two drops of the tincture of aconite root with three of the fluid extract of gelsemium repeated once a half hour for three or four times will be found to be of great value in the treatment of this form of headache.

The hot-water bottle applied to that part of the spine between the head and shoulder blades will also give great relief.

Congestive Headaches.— The exercise, diet, mode of sleeping, etc., should be the same as in plethoric headaches. In this complaint, there is too much blood in the head, and it inclines to stagnate. The feet and hands are cold; and gloves and stockings of wool, and other bad conductors of heat from the body, must be worn.

Occasionally a little gentle physic (319) is desirable to induce the bowels to act every day. If there is great debility, iron (71), (74), (75), (320), will be required. The ice bag applied to the last six or eight inches of the spine will call the blood to the extremities. The aconite and gelsemium recipe as given above is also very useful.

Headache of Indigestion.— If the pain come immediately after a meal, and can be traced to something eaten, an emetic (2) may be taken, if the person be tolerably strong. If the pain come on some hours after eating, take rhubarb and magnesia (28), (14), or fluid magnesia. When the system is debilitated, take a warm draught (322) in the morning after a light breakfast, or twice a day, a bitter with an alkali (323). If the stomach be very irritable, bismuth, at meal times (324), (326). When it occurs after a debauch, take recipe (325).

Sick Headache.— When it results from food taken, a draught of warm chamomile tea, or a little weak brandy-and-water, will generally

give relief. If the sickness continue, soda and water, with a little ginger may do well, or a mustard poultice upon the stomach (165) may be required. As soon as it can be kept on the stomach, a dose of physic (326) must be taken; and if relief does not come after the operation of this, give a bitter and an aromatic (327). The patient must have perfect rest. If there be great lack of tone in the system, the mineral acids (328), (329) will be excellent.

The diet must be carefully regulated, as in plethoric and congestive headaches. Cocaine, one-eighth grain every fifteen minutes till the nausea stops, and then a dose of physic is an excellent method of treatment. Ten grains of amonol (ammonol) every hour will stop the pain, and very often the same amount of phenacetine will accomplish the same result.

Bilious Headaches.—These are generally connected, more or less, with some affection of the liver.

During an attack, if the suffering be great, attended by nausea, give an emetic (2). In milder cases, give recipe (321). If there be costiveness, give recipe (330) at night, and (7) in the morning.

A few doses of podophyllin, leptandrin, etc. (34), (36), (39), to relieve the liver when the bile does not flow fast enough, will diminish the frequency and force of the attack. The fluid extract of dandelion, taken for some time, often does good service.

The diet should be light, and chiefly vegetable, and exercise in the open air must not be omitted. The daily sponge-bath, with friction, is excellent,

Nervous Headaches.—The first thing to be done is to relieve the pain, and this may generally be accomplished either by preparation (331), or (332), or (333), or (88), or (93), or two or three drops of tincture of nux vomica in a spoonful of water, taken three times a day. 351 will be found usually to be of most service.

In simple nervous headache, *diet* is of the greatest importance; in hysterical cases, *exercise*; in headaches from exhaustion, tonics (81), (79), (63), (73), (64), (61), (60).

Of the simple remedies found on the druggists' counter bromide of caffein in effervescent form is very efficacious.

Rheumatic Headaches.—Take a light diet, with but little animal food. Wear warm clothing, and avoid exposure to wet feet and dampness generally, and go to a mild climate, if convenient.

When the local pain is great, apply hot fomentations, or a stimulating liniment (334), or a mustard poultice, to the back of the neck. In the beginning of the treatment, a little physic at night (335) is useful. 10 grs. potassium iodide, gradually increased, in water, is the best medicine.

Before closing this chapter on headaches, let me enter a respectful protest against the indiscriminate use of the thousand and one remedies advertised to cure headaches; for in a great majority of cases it

is merely a symptom of some other disease; for instance, Indigestion, Fever, Bright's Disease, Softening of the Brain, Diseased Liver, etc.; and the use of these remedies serves rather to increase than lessen the difficulty. Much has been written and much printed matter been given away by patent medicine venders vaunting their specific cures for headaches. These venders have grown in numbers of late, since the introduction into medicine of the coal-tar products, so that samples of headache cures may be found on one's doorsteps every little while. For the most part they are composed of what is known as acetanilide or antifebrin, because of its cheapness as compared with other coal-tar products. It is, however, the most harmful of them all, often causing blueness of the lips, fluttering of the heart, dizziness, faintness, etc. Of other similar products not so much danger may be expected, and yet no one ought to resort to these remedies without the consent and approval of the family physician. Eight grains of phenacetine for an adult, repeated in two to four hours, no doubt will cure more headaches of all descriptions than any other single drug. Lactophenin and ammonol are some of the newer remedies for headache which have the reputation of being efficient as coal-tar products without any of their ill effects. Antikamnia, a proprietary medicine of the coal-tar group, enjoys a large sale, not only for headaches, but for general neuralgic pain, and, if employed in six-grain doses every two to four hours, according to the severity of the pain, will stop a large proportion of these aches. The various combinations of the bromides are always safe, and often quite efficient in curing headaches, especially if nerve-element is strong in their causation; bromo-cafein, bromo-seltzer, bromo-soda, etc., are generally put up in small bottles in an effervescent and palatable form.

DISEASES of the THROAT

DISEASES OF THE THROAT.

(Also see *Anatomy of Throat and Anatomy of Vocal Organs.*)

THE diseases which seat themselves in the throat, and in the great cavity of the chest, have occupied a large share of my attention for the last ten years. My practice in these complaints has been large, —being drawn from every part of the United States, and the British Provinces. No class of diseases from which men suffer are more numerous than these, and none have so generally baffled the skill of the profession. For this reason, I wish to present here a brief, practical, and common-sense view of these complaints, which shall be of real value to the thousands of families who consult these pages.

Increase of Throat Diseases.—A striking increase in the number of throat diseases has been witnessed within the last few years. A person suffering from any of them will find, on speaking of his complaint, that a number of his neighbors are afflicted with troubles of a similar kind. I have thought that in some of their forms these diseases have fastened upon the throats of not less than half our population. And when it is considered that they are the natural, and if unmolested, the certain harbingers of lung disease, it is wise to make a note of the above fact. As I shall describe them in the nasal cavities, the pharynx, the fauces, etc., they all have a natural proclivity downwards. From these upper cavities they pass, by one short step, into the larynx,—the cavity where the voice is formed,—and then, by another equally short and easy stage, into the body of the wind-pipe. It is a singular fact that their progress is always from the upper breathing passages downward, and never from the lower passages upward. They afford a parallel to the order of progression in the moral world, in which evil tendencies are toward a lower depth.

A Mistake Corrected.—Before describing the several diseases which belong to this family, I wish to correct the mistake which so generally classes them all under the term *Bronchitis*.

They all consist in a simple inflammation, acute or chronic, either of the mucous membrane lining the several cavities to be spoken of, or of the small glands or follicles connected with that membrane; and each disease takes its name from its particular location. Thus, the inflammation of the membrane lining the upper part of the throat, or pharynx, is called *Pharyngitis*. Inflammation in the top of the

windpipe, or larynx, is *Laryngitis*. In the windpipe, or trachea, it is *Trachitis*. In the bronchial tubes, it is *Bronchitis*. As the bronchial tubes exist nowhere except in the lungs, below the division of the windpipe, there can be no Bronchitis in the throat. Nevertheless, it is the same disease with Laryngitis and Pharyngitis, and differs from them only in being in a more dangerous place.

As the windpipe descends into the chest, it divides below the top of the breast-bone into two branches, one going into the right, the other into the left lung. These branches divide and subdivide very minutely, and send their ramifications into every part of the pulmonary tissue. Thus situated, Meckel has compared the windpipe to a

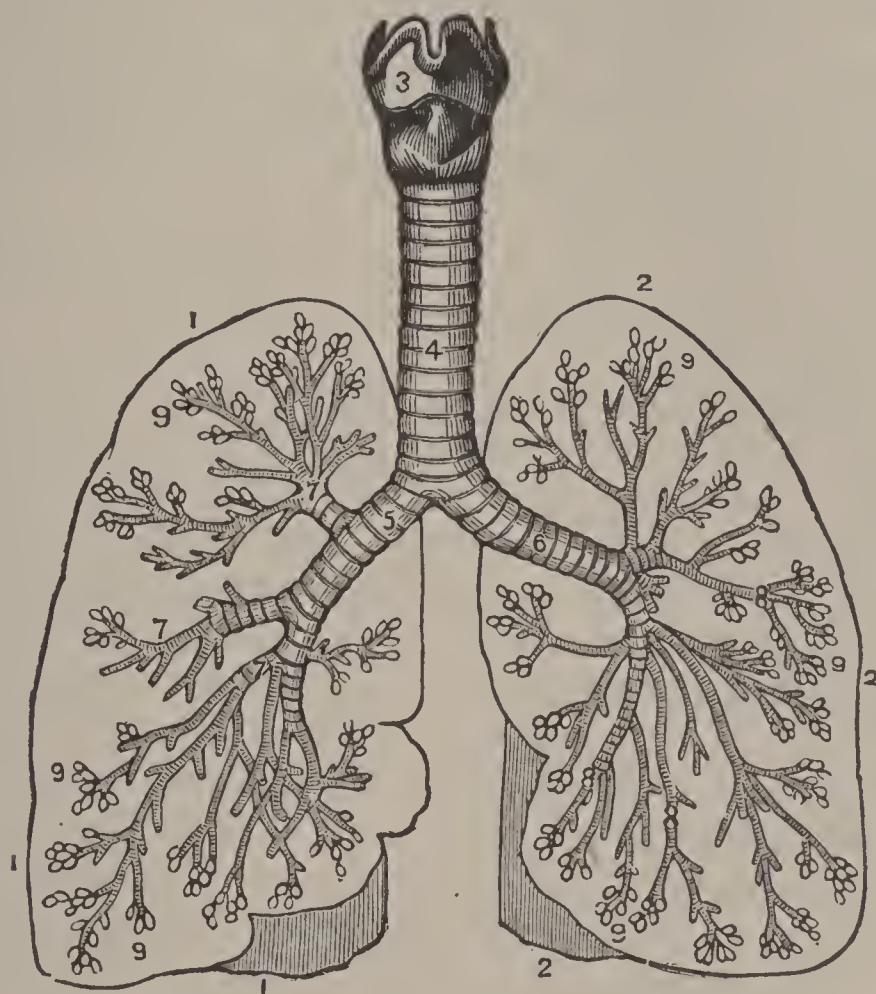


FIG. 86.

hollow tree with the top turned downward,—the larynx and trachea representing the trunk, and the bronchial tubes, with their innumerable subdivisions, the branches and twigs. (Fig. 86.)

If the reader will now understand that the trunk and branches of this bronchial tree are hollow throughout, and lined with a delicate and smooth mucous membrane, and that the diseases to be described are inflammation either upon this membrane or the small glands connected with it, causing swelling, redness, unhealthy discharges, roughness, etc., he will have a good general idea of them.

Nasal Catarrh.

I TAKE these diseases in the order of their location. Nasal Catarrh consists in inflammation, which begins behind and a little above the

veil of the palate, and extends upward from thence into the nose. It is an exceedingly troublesome complaint, and afflicts great numbers. It passes under the name of Catarrh in the Head.

The inflammation is not confined to the nasal cavities. It extends frequently to the air-cavities, called *antrums* and *sinuses*, which cover a considerable portion of the face, and extend to the lower part of the forehead. Persons sometimes feel as if their whole face were involved in the disease, and were almost in a state of rottenness, — so great is the amount of matter discharged from the head. Such free discharges cannot be wondered at when we reflect that all the air cavities in the face are lined with the same mucous membrane which lines the nose, and that they all communicate with the nasal cavities.

The “horn ail,” among cattle, is a similar inflammation of the inner surface of the horns; and the “horse distemper” is an inflammation of the air cavities in the head of the horse, and is much the same disease with our catarrh in the head.

The catarrh often creates a *perpetual desire to swallow*, and gives the feeling, as patients express it, “*as if something were sticking in the upper part of the throat.*”

When the inflammation has existed a long time, and ulceration has taken place, puriform matter is secreted, and drops down into the throat, much to the discomfort of the patient. Indeed, this is one of the most distressing features of the complaint, as this matter often descends into the stomach in large quantities, causing frequent vomiting, and a general derangement of the health. Many times the sufferer can only breathe with the mouth open. Upon rising in the morning a great effort is required to clear the head and the extreme upper part of the throat. There is occasionally a feeling of pressure and tightness across the upper part of the nose; and the base of the brain sometimes suffers in such a way as to induce headache, vertigo, and confusion. The smell is frequently destroyed, and sometimes the taste. The inflammation sometimes gets into the Eustachian tubes, the mouths of which are behind and a little above the veil of the palate, and extends up the lining membrane to the drum of the ear, causing pain or deafness, and occasionally both. In addition to this catalogue of evils, there is often added inflammation and elongation of the uvula or soft palate.

Treatment. — The following is a fair illustration of my mode of treatment: —

Mr. —, of Boston, came under treatment for a bad case of catarrh in the head, complicated with follicular disease of the pharynx, or upper part of the throat. In addition to nearly all the symptoms mentioned above, he had a stench from the nose exceedingly offensive to all about him. So much had the disease worn upon him that he had become bilious, sallow, dejected, and low in strength and flesh.

When it is said that to all these were added a cough and loss of appetite, with insidious approaches of hectic, it will not be surprising

that his friends saw the most serious results impending, even though assured by me that the disease had not yet taken a firm hold of his lungs. The first thing done for him was to cut off the uvula. Five days after, I began to bathe the whole nasal cavity, three times a week, with a shower syringe, by pushing the smooth bulb up behind the veil of the palate, and throwing instantaneously a most delicate shower of medicated fluid up both sides of the septum. The upper part of the throat was likewise bathed by the use of a shower syringe made expressly for that part, and the larynx, or place where the voice is formed, by a long, bent instrument made to reach this part of the throat. The solution used consisted of half a dram of crystals of nitrate of silver dissolved in one ounce of soft water.

The nitrate of silver powder was inhaled once a day with the powder inhaler. In this way the nasal cavities and throat were kept cleansed, and the articles used gradually subdued the inflammation, setting up a new and healthful action in place of the diseased one. The stomach was relieved of the offensive matter which had daily and nightly gone down into it, and the system of the poisonous effects of its absorption. The great danger which threatened the lungs, and which would soon have been realized in their destruction, passed away. The skin gradually resumed its proper color; the appetite, flesh, spirits, and strength came back, and Mr. B. has been since in the enjoyment of good health, pursuing his business cheerfully.

When the above treatment fails, as it does occasionally, I am in the habit of changing the solution, using sometimes a weak solution of acid nitrate of mercury, twenty drops to an ounce of water. In other cases, a solution of sulphate of zinc serves a good purpose. A dilution of the tincture of arnica-flowers is a preparation of some value in these cases. There are other preparations, too numerous to mention, which I am in the habit of using. I will add, that the nitrate of silver powder, snuffed once a day, a pinch at a time, is far more successful than any other *snuff* ever made, but should be used only in severe cases, and with caution.

Nasal catarrh is such a common affliction in the Eastern States, as to be a widespread curse. Douching the nose with salt and water (warmed) cleanses the nose of the foul mucus. The douche should be from a bag hanging only a little higher than the head, or it may be given by means of a common, blunt-pointed syringe, care being taken not to use too strong force, nor to point the syringe in the direction of the eyes. The stream of water should be directed straight ahead parallel with the floor; the mouth must be open, and the patient assume the position of the countryman when gazing or gauking at the sights on his first visit to the city. The water then runs down the throat and also out of the other nostril. This process should be employed on both sides till the head is clean. The tablets put up by all wholesale druggists, called "Carl Seiler's alkaline tablets," is the best remedy for a nasal douche.* The subsequent treatment is best ad-

* One of these tablets dissolved in a half cup of water. Practically the same solution may be made by adding to the same amount of hot water 10 grains of borax, 15 grains of cooking soda and 5 grains benzoate of soda.

vised by a physician, and usually consists in the use of some inhalation or spray.

Inflammation of the Pharynx.—*Pharyngitis.*

THIS is an inflammation of the upper and back part of the throat, or all that part which can be *seen* when the mouth is stretched open. It causes a redness of the mucous membrane lining the part, which is deep in proportion to the intensity of the inflammation. This complaint is generally connected with the one I am about to describe; and since the treatment is the same the reader is referred to what next follows.

Adenoid Growths.

IN young children a very disagreeable catarrhal affection often exists in the naso-pharynx just behind and above the uvula. This is caused by continued catarrh till at last small growths occur like proud-flesh, and not infrequently block up the passage from the nose to the mouth, to that extent that not only is loud snoring produced at night, but breathing becomes difficult by day. In severe cases the upper jaw becomes angular, and the face assumes a peaked, pinched look. These growths are extremely common in children, and are productive of much mischief. The inability, in severe cases, to properly breathe deprives the lungs of their proper amount of oxygen, so that the little one suffers in nutrition and growth.

Treatment consists in scraping away with a scoop, or even with the finger, these soft, granulating masses. The effect is almost marvellous: the child breathes quietly, without snoring, the color returns to the cheeks, and the blood receives a new supply of food from the full supply of oxygen. In modern times, nothing has been inaugurated in the treatment of children's throat and nose diseases so beneficial and happy.

Clergymen's Sore Throat.—*Follicular Pharyngitis.*

THIS disorder made its appearance in this country in 1830, and the attention of the profession was first drawn to it, *as a distinct disease*, in 1832. Some have supposed its origin to have had a hidden connection with the epidemic influenza which spread over the civilized world in 1830, and affected all classes of persons; but this is only conjecture. In its early developments it attracted notice chiefly by its visitations upon the throats of the clergy. Hence its popular name of *Clergymen's Sore Throat*. It was soon found, however, to attack all classes of persons indiscriminately, whether engaged in any calling which required a public exercise of the voice or otherwise. It was noticed more by public speakers and singers, on account of the greater inconvenience it gave them.

The disease consists in a chronic inflammation of the mucous fol-

licles, or glands, connected with the mucous membrane which lines the throat and windpipe. The office of these little glands is to secrete a fluid to lubricate the air passages. When inflamed, they spread an acrid, irritating fluid over surrounding parts, which excites inflammation in them. Hence a general inflammation of the upper part of the throat or pharyngitis usually attends the follicular disease, and I shall speak of the two together. This inflammation of the glands and the membrane, being neglected, as it generally is, lingers on from month to month, or from year to year, making in some cases slow progress, in others more rapid, — made a little worse and its step slightly quickened by every fresh cold, and finally results in ulceration. The expectoration thenceforward becomes puriform, and finally undistinguishable from that of consumption, with all the symptoms of which the patient finally dies. Indeed, before its nature was understood by the profession, it was considered the most fatal form of consumption, because it could be affected only in a very small degree, if at all, by medicines taken into the general system. For the milder cases one will find great comfort in the use of the troches of cubebs and ammonia, the inhalation of benzoin with steaming water, also from such throat-tablets as the Chloramine.

Inflammation of Mucous Membrane and Glands of Larynx. — *Follicular Laryngitis.*

A FEW strong and beautifully formed cartilages unite to form a curious and convenient box or cavity at the top of the windpipe, called the larynx. Across this enclosure are stretched two remarkable ligaments, called the vocal cords. They are from half to three quarters of an inch in length, and are rendered more or less tense by the small muscles with which they are connected. Just above these cords are two cavities, which, with the ligaments, act an important part in the formation of the voice. Here is produced the *sound*, which is modified and *articulated* by the tongue, the lips, and the nasal cavities.

When disease reaches this cavity, and the fluid secreted to lubricate these cords becomes acrid, the voice, from this and other causes, is made hoarse; and when, at length, these ligaments are altered in structure by inflammation and ulceration, the voice suffers a gradual extinction. I have treated a large number suffering entire loss of voice, and am happy to say it has been generally restored, where the lungs have not been involved in the disease. There is often also a little sensitiveness, or even soreness, in some cases, in the region of the larynx, which may be felt by pressing upon that prominence in front of the throat, called Adam's apple.

Inflammation in the Windpipe.—*Tracheitis*.

THIS complaint and the one preceding it differ only in their locality from those described in the upper cavities; and they are more alarming, because two removes nearer the citadel of life. Happily, we know that the seat of these diseases may be easily reached, and we have a shower syringe, so arranged as to pour the remedial agent directly upon them, without any lacerating disturbance of the parts.

Symptoms.—The approach of these disorders is often so insidious as hardly to attract notice,—sometimes for months or even years,—giving no other evidence of their presence than the annoyance of something in the throat to be swallowed or hawked up, an increased secretion of mucus, and a sense of wearisomeness and loss of power in the throat after public speaking, singing, or reading aloud. At length, upon the taking of a severe cold, the prevalence of an epidemic influenza, or of an unexplained tendency of disease to the air-passages and lungs, the throat of the patient suddenly becomes sore, its secretions are increased and rendered more viscid, the voice grows hoarse, the difficulty of speaking is aggravated, and what was only an annoyance becomes an affliction and a source of alarm and danger. These diseases clearly belong to the family of consumption, and need early attention.

Causes.—It is amusing to reflect upon the theories which writers were in the habit of constructing, a few years since, to account for the throat affection among the clergy. It was attributed by some to speaking too often, by others to speaking too loud. One class of writers thought it arose from muffling the neck; another, from a strain of voice on the Sabbath to which it was not accustomed on other days.

The cause lies deeper than any of these trifling things. As it concerns ministers, it may generally be expressed in two words,—labor, anxiety.

The clerical order are placed just where they feel the force of the high-pressure movements of the age. They are the only class of recognized *instructors* of adult men, and are obliged to make great exertions to meet the wants of their position. The extremely trying circumstances in which they are often placed, too, in these exciting times, by questions which arise and threaten to rupture and destroy their parishes, weigh heavily upon their spirits, and greatly depress the vital powers. And, when we add to this the fickle state of the public mind, and often the shifting, fugitive character of a clergyman's dwelling-place and the consequent liability to poverty and want to which himself and family are exposed, we have a list of depressing causes powerfully predisposing to any form of disease which may prevail.

It will be pardoned me, I think, if I suggest here, that the nature of a clergyman's calling is of so serious a character, that he sometimes carries himself with too much sedateness, keeps himself too much braced up, and does not allow himself hours enough of that cheerful, light-hearted abandon, which is essential to the health of every sedentary man of mental habits. The hard-thinking and hard-working minister, who will retain his health and save his throat, must have *some* moments, at least, when the weighty responsibilities of his office are lifted up from his soul, and he becomes, for the hour, the jocund, playful boy of earlier days. How *far* he can consistently relax and let himself down, or in my view of the matter, *raise himself up* to the simplicity and mirth of childhood, he alone can be the judge. As a physician, I prescribe: as a minister, he must decide how far my prescription can be followed.

Reading Sermons.—There is one practice, which, though it has not much to do with *inducing* this disease, does frequently aggravate it when once established; I mean the habit of reading sermons from manuscripts, — especially when it is done in a sort of mechanical way. Every person who has suffered from throat-ail has doubtless noticed that to read aloud, for half an hour, from a book, occasions more fatigue and irritation in the throat than extemporaneous speaking, in the same tones, for one or two hours. The reason is, that in the latter case the mind conceives the thought in season for the organs of speech to fall into a natural attitude, and utter it with ease. The two work harmoniously together,— the instruments of articulation following the mind, and easily and naturally uttering its conceptions. Whereas in the case of reading, the mind itself is, at least partially, ignorant of what is coming until it is just upon it, so that the organs of speech, being warned of what is to be done only at the moment their service is required, do their work under a perpetual surprise and constraint. The difference is, in some respects, like that between walking freely at large, without regard to where the feet are put down, and being obliged to step exactly in the footprints of some traveller who has gone before. In the latter case, the muscles tire much sooner, because they work in fetters.

I have thus spoken particularly of the clergy, though it is not by any means they only, but all classes of people who are afflicted with this dangerous malady.

These diseases often *begin* with a cold. But colds are seldom taken except when the nervous system is depressed, so that they are, in fact, to be traced back to the same cause which I have assigned to catarrhal or throat complaints themselves.

These Complaints Worse at Night.—It is worthy of note, that all these complaints, and many others, are worse during the night. This is easily explained when we remember that the atmosphere has the least amount of electricity in it at three o'clock in the morning, and that the first minimum atmospheric pressure, which happens twice a

day, occurs not far from the same hour. *From three to four in the morning, therefore, the nerve-power sinks to its lowest ebb*; and those diseases which owe their existence to anxiety, overwork, etc., suffer, at this time, their greatest daily aggravation. Death occurs, too, more often during these hours, than in any other portion of the twenty-four.

Treatment.—Some years ago these diseases were thought to be incurable; and by all the appliances of medical art then known, they were so. But time has brought a successful method of treatment, as well as a clearer knowledge of their nature.

This treatment consists in what is called topical medication, or the applying of the medicine directly to the diseased part. The medicinal agent more extensively used than any other is a solution of *crystals of nitrate of silver*. This substance is not, however, adapted to *every* case,—other articles succeeding better in some instances. Modern chemistry has given us a variety of agents from which the skilful physician may select a substitute, should the nitrate of silver fail.

The operation of applying this and other substances to the air passages, is a delicate one, requiring tact and experience. Surgeons had supposed it an anatomical impossibility to introduce an instrument into the larynx; but this has been practically demonstrated to be a great mistake.

Instruments.—The instrument devised and used by Dr. Horace Green is a piece of whalebone, bent at one end, to which is attached a small, round piece of sponge. This, dipped in the solution, is dexterously introduced into the laryngeal cavity, and applied directly to the diseased part.

I formerly used this instrument myself, and am happy to know, that, notwithstanding its defects, it was generally successful. Yet where the larynx was highly inflamed, with a swollen and ulcerated condition of the epiglottis and lips of the glottis, I am sure I sometimes had the singular powers of the nitrate of silver put at defiance by an irritation evidently produced by the sponge of the probang. Upon its introduction, in such cases, the parts contract upon and cling to it, and suffer aggravated irritation, almost laceration, upon its withdrawal, however carefully effected.

Laryngeal Shower Syringe.—Such defects in the probang led me to contrive an instrument, which I call a *Laryngeal Shower Syringe*. It is in the form of a syringe, the barrel and piston of which are made of glass, silver, or gold, as may be desired. To this is attached a small tube, made of silver or gold, long enough to reach and enter the throat, and bent like a probang, with a *globe* or bulb at the end, from a quarter to a third of an inch in diameter, pierced with very minute holes, which cover a zone around the centre about one-third of an inch in breadth.

This silver bulb I daily introduce into highly inflamed and ulcer-

ated larynges, generally without any knowledge of its presence on the part of the patient, until the contained solution is discharged. The instrument, being charged, is carried to the proper place, when a delicately quick pressure upon the piston causes very fine streams to flow through the holes in the form of a delicate shower, and all sides of the walls of the larynx are instantaneously bathed.

How Introduced.—The introduction of this instrument into the larynx is easy. Upon the approach of any foreign substance, the epiglottis instinctively drops down upon the entrance to the larynx, guarding it against improper intrusions. It has been found, however, that when the root of the tongue is firmly depressed, this cartilage *cannot* obey its instinct, but stands erect, its upper edge generally rising into view. Availing himself of this, the surgeon has only to depress the tongue with a spatula, bent at right angles, so that the left hand holding it may drop below the chin out of the way, and as the epiglottis rises to view, slip the ball of the instrument over its upper edge, and then with a quick yet gentle motion, carry it *downward* and *forward*, and the entrance is made. I have often admired the faithfulness of this epiglottic sentinel, who, when overborne by superior force, stands bolt upright, and compels us to enter the sacred temple of speech *directly over his head!*

Pharyngeal Shower Syringe.—For washing the upper part of the throat, I construct the instrument with a *straight* tube, with holes over the outer end of the globe, and extending to the centre. This washes instantaneously the fauces and pharynx, but does not throw the solution back upon the tongue. Its main advantage over the probang is, that it bathes every part of the fauces and pharynx instantaneously, and does not subject the patient to the coughing and gagging which follow the slower and rougher process of drawing the sponge from side to side across the cavity of the throat.

Nasal Shower Syringe.—Inflammations in the back passages to the nose, called catarrh in the head, have been almost inaccessible by any reliable healing agent, and consequently incurable. The probang could only reach a *short distance*, and occasioned great suffering. I have had a syringe constructed with the tube bent at an angle of forty-five degrees, and the globe, very small, pierced with a few fine holes at the upper end. Carrying this globe up behind the velum palati, with a single injection I wash both passages clear through. I have had the pleasure of curing a large number of bad cases, of many years' standing, to the surprise and delight of the patients.

About nineteen-twentieths of the physicians who have examined these instruments, and so far as my knowledge extends, all who have used them, think them much better than the probang. As to patients, I have yet to see one who will allow the sponge to be used after trying both.

Have Superseded the Probang.—In my own practice the syringes

have superseded the probang *altogether*. My reasons may be briefly stated. I have already said there is less irritation produced. A piece of sponge drawn over an inflamed surface, especially when clung to by the irritated and quivering parts, must necessarily, in some cases at least, aggravate the symptoms of disease. To this consideration add the comfort of the patient during the operation. It is so quickly and delicately done with the syringe, that it is scarcely known when the act is performed. The straight syringe does not touch the throat at all. On touching the probang to the throat, the nitrate of silver unites with the mucus upon the surface, instantly covering the sponge with an albuminous pellicle, something like that which lines the shell of an egg, preventing, in a degree, the further pressing out of the solution, and rendering its contacts with other parts of the surface comparatively powerless. For this reason, the sponge pushed down into an ulcerated bronchus, as Dr. Green recommended, must be utterly valueless as a remedial agent. Mopping, as it does in its whole course, a larynx and trachea, lined in some cases with puriform matter, and generally with mucus, every inch of its descent doubles the gravity of this objection. 'Let it be considered,' too, that in applying the remedy to an ulcerated larynx, the sponge cauterizes the healthy parts above, in its descent, and thus unfits itself for doing much for the diseased part; whereas the syringe retains its solution till it reaches the affected place, and then pours a clean shower directly upon it, and upon *no other part*.

Considering these manifest advantages of the syringes, I am surprised that any physician should still use the probang,—especially as one of these instruments, the Nasal Syringe, accomplishes an object which the probang cannot effect at all, not even in a rough way. I have wondered, too, how any parent can allow a child, suffering with croup, to be tormented by having a sponge pushed down its throat, when a syringe would give it so much less pain.

I will mention briefly one or two cases of croup and diphtheria, selected from a great number treated by me for the last few years, where the syringes were successfully used, after several attempts to use the probang had been made, and failed, and where the pain caused by using was so small, and the relief so instantaneous and complete, that the patients were anxious for my return to use it again.

I was called to see a little boy of Mr. R., five years old, who had had an attack of membranous croup some days previous; and when I saw him the voice had sunk to a whisper, and the cough was entirely muffled, so that I had no doubt of the fatal termination of the case, and expressed my opinion to that effect to the astonished parents. The probang had been used by the physician in attendance, which had caused so much suffering that for the two days previous the parents had prohibited its use. It had no doubt increased the irritation, besides nearly causing strangulation.

It was, therefore, with great reluctance that they consented to let

me use the syringe, which I did, to the great relief of the little sufferer, and to the entire satisfaction of the parents.

The strength of the solution of the crystals of the nitrate of silver used was 20 grains to the ounce of water, which I injected freely, once in three hours for the first day, and then two or three times a day for two or three days. His recovery was rapid and complete.

I will now mention the case of a young woman, with diphtheria, where the syringe was used with success.

I was called to see a young lady, who had an attack of diphtheria the day previous. Found her in bed, very much prostrated, breathing with great difficulty, and uttering at every inspiration a croupal sound, which at times was followed by a short, convulsive cough. The face was flushed, pulse 124, small and feeble, and she complained constantly of a sense of suffocation and of great distress in the laryngeal region.

On inspecting the throat, the fauces and the pharyngeal membrane, as far down as it could be seen, presented the appearance of a high degree of inflammation. One of the tonsils was nearly covered with the diphtheric membrane, and the upper and back part of the throat were thickly studded with small white or cream-colored spots.

The physician in attendance had tried first a swab, or mop, as she termed it, and then the probang, which gave her so much pain that he was obliged to give it up. He then gave up the case as hopeless. At my earnest solicitation she consented to the use of the syringe. With a solution of the crystals of the nitrate of silver, of the strength of 60 grains to the ounce of water, I injected freely the fauces and the upper part of the cavity of the larynx. For a few moments the difficulty of breathing and feeling of strangulation was increased, but very soon a large amount of viscid, ropy mucus was discharged. In the course of half an hour after the use of the syringe, the symptoms had improved, the respiration was less laborious, so that in a short time the patient obtained some sleep. I was afterward called, as she thought herself worse, but found that an application of the caustic with a syringe was all that was required. There was no further trouble with the case.

These syringes or similar ones can now be bought of any large dealer in surgical instruments. Figure 87 represents the syringes as they lie in a case.

Mode of Using. — The glass barrel and piston of my instruments are delicate, but they need not be broken. I handle them with the same ease that I do a spoon in feeding myself, and not in a very dissimilar way. The last three fingers are placed on the under side of the barrel, with the thumb on the upper side, — the index finger being poised over the end of the piston, ready to drive it home at the

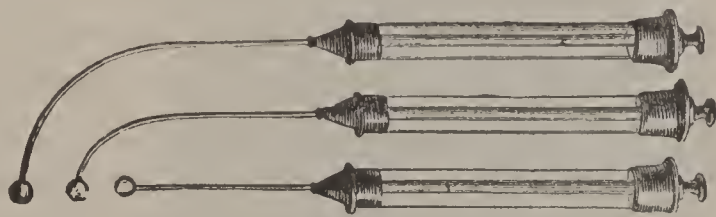


FIG. 87.

proper instant. The motion of the piston should be *quick*, so as to cause the streams to leap out in jets; yet *delicate*, that they may not impinge with too much force upon the diseased surfaces.

They should be rinsed with water immediately after being used. But even with this precaution, a small residuum of the nitrate remains and crystallizes, and after a time partially closes the holes. They must then be picked out with the point of a needle.

When the silver tube becomes detached from the glass, it may be fastened on with common sealing wax; first melting the wax and sticking it around the glass; then heating the silver over a lamp, and pressing it on.

Amount of Solution to be Used. — The amount of solution to be used should be small. Half a dram is enough. The piston of the syringe need be drawn up only from an eighth to a third of an inch. Strangling is not often produced by these operations; but to make its prevention still more sure, let the patient be directed to fill the lungs with a long inspiration while the operator is depressing the tongue.

Strength of Solution. — The strength of the solution in ordinary cases of chronic folliculitis, etc., should *generally* be about forty grains of the crystals of the nitrate of silver to the ounce of water. But in all *acute* diseases of the air passages, it should be considerably stronger, — varying from one to two drams. A preparation of this strength is powerfully antiphlogistic and sedative. In those cases of *chronic* disease, where the inflammation is of a low grade, and the mucous membrane is in a relaxed, atonic condition, looking either sodden and pale, or of a dark color, like the cut surface of beef some days exposed to the air (as is often the case in throats of literary dyspeptics), then a solution of fifteen to thirty grains to the ounce is sufficient. This strength acts as a stimulant, and is well suited to throats in such condition, but would be *injurious* in high grades of inflammation. Catarrh in the head *generally* requires only about this strength. I am sorry to say, the topical mode of treating throat affections has been in some places injured, in the public estimation, by a lack of knowledge and judgment on the part of the operator, in choosing the strength of his solution.

To determine the proper *frequency of the operation*, also requires judgment and experience. In an ordinary case of chronic disease, the treatment may begin by showering the throat once a day for a week. Then the operation should be repeated three times a week, for a shorter or longer period; then twice a week, and at last once a week.

Attendant Diseases. — Among the persons I am treating for diseases of the air passages, many are dyspeptic and suffer with *depression of spirits*. So often does this symptom present itself that I regard it as almost one of the peculiarities of throat disease. Persons thus depressed generally have the dark and dingy look of the face which indicates functional derangement of the liver. They are often

emaciated, nervous, hypochondriacal, irritable in temper, and are exhausted by an excessive secretion of urea. The urine of such persons is always acid, and *loaded with crystals of oxalate of lime*.

An explanation of this fact has been attempted, by supposing that the oxydation of carbon (of which these persons have a superabundance), imperfectly accomplished in inflamed respiratory organs, is vicariously effected in the capillaries of the kidneys,—oxalic acid (C_2O_2) instead of carbonic acid (CO_2) being the result.

The crystals of oxalate of lime are octahedral in form, and, in the field of a good microscope, are beautiful objects for inspection.

Lawyers, clerygmen, statesmen, and, in general, those who labor hard mentally, with but little bodily exercise, and who have a great weight of care resting on them, are the persons who suffer most from this complication. Generally the inflammation in the throat is of a low grade, and must not be treated with a *very strong* solution of nitrate of silver.

Of course when these attendant diseases exist, something more is needed than the local treatment. For the troubles just described, the treatment for hypochondria and dyspepsia will be proper.

Elongation of the Uvula.

THE uvula is the small teat-like or pendulous organ which hangs down from the palatine arch, just over the root of the tongue. It is very apt to get inflamed, and its parts becoming relaxed, it stretches out lengthwise, so that its lower extremity sometimes rests upon the tongue. (Fig. 88.) When this happens, it flaps about, backward and forward, and to the right and left,—touching the throat at various points, and by the tickling sensation produced, exciting a most incessant, uncontrollable, and racking cough. Some of the most distressing coughs I have ever heard have been produced and kept up by this cause alone. Many a fatal consumption has begun in this way. When long inflamed, it often gets much out of shape, being sometimes bent nearly double.

Treatment. — In some cases, the uvula, thus elongated, may be reduced back to its natural size, by an astringent gargle, composed of an infusion of white-oak bark, with a little alum dis-

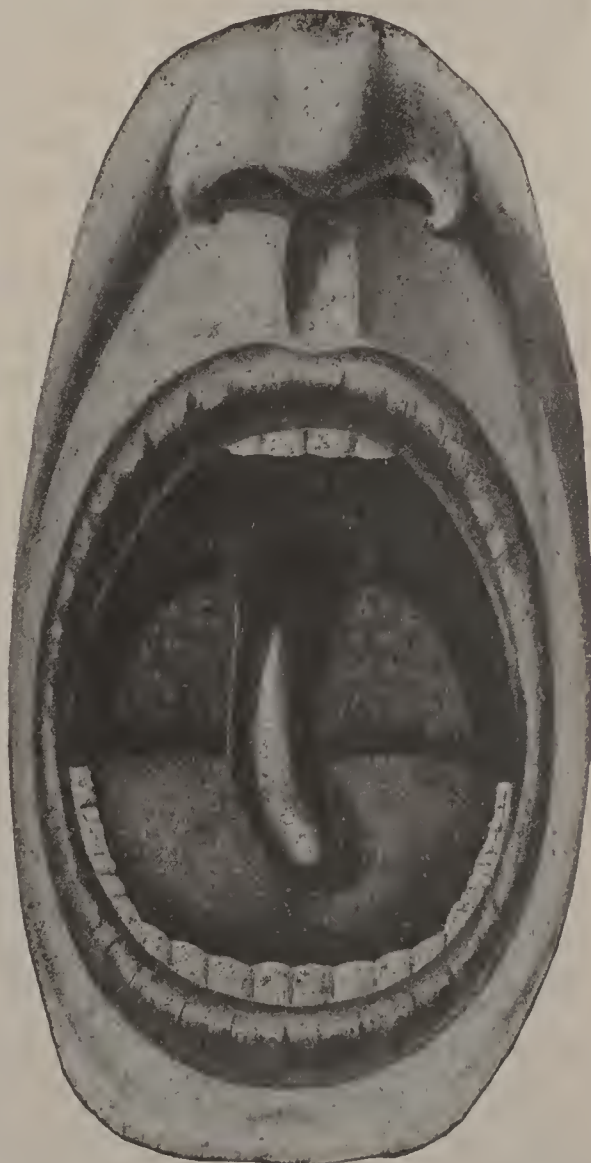


FIG. 88.

solved in it (232) ; but it will generally stretch out again and again, upon the appearance of any fresh cold, and, therefore, the only certain cure is to cut it off.

To do this, take hold of it with a pair of common forceps, and having stretched it down a little, clip it off above the forceps, with a pair of curved scissors. Nearly the whole of it should generally be removed. To take off a part only leaves a stump, which is often more objectionable than the whole organ. Its removal never injures the speech in the least. In many cases of nasal catarrh, this organ is a sort of diseased centre, from which inflammatory action spreads upward into the nasal cavities, and no medicine or power on earth can effect a cure until this offending member is snipped off.

Acute Inflammation of the Tonsils. — *Tonsilitis*.

THE tonsils are chiefly a collection or mass of small mucous follicles or glands. They secrete a portion of the fluid which keeps the throat moist.

There is a class of persons who suffer about every winter, sometimes oftener, with an attack of acute inflammation of these glands, which causes great suffering for several days. The trouble usually is ushered in by high fever, backache, headache and often by chills; the temperature often reaches to 103° and 104° F.; swallowing is difficult on account of the swollen glands, while pain in the ear is not infrequent. The tonsils are at first swollen, reddened and inflamed; later a whitish patch of secretion forms on the surface of the gland and is distinguished from that of diphtheria by being whiter and less tenacious; if removed, the underlying surface does not bleed as in the case of diphtheria. It is, however, very difficult, at times, to distinguish between the two diseases at first.

Another form of Tonsilitis occurs without patches, and is in reality an inflammation of the substance of the gland itself. This variety, often called *Quinsy*, goes on developing into an abscess, the anterior pillar of the fauces becomes intensely red, swollen and shiny.

Treatment. — For the more common variety some antipyretic to reduce the fever and allay the intense aching of the head and bones is properly indicated. For this purpose 10 grains of Phenacetine (for an adult), repeated every two to four hours according to the effect produced, is quite efficacious. Ammonol in same dose may also be used. Some simple astringent and soothing gargle will next be found to render signal relief. Tannin, 30 gr., strong Carbolic Acid (95%), 30 drops, Glycerin, 1 oz., and peppermint water, 3 oz., is an admirable gargle for the average case: this should be used hourly.

Equal parts of Glycerin, Alcohol and Water makes a very soothing gargle, while equal parts of Peroxide of Hydrogen and Water is preferred by many. The diet should be limited in amount and consist only of liquids.

Tincture of aconite in 1 or 2 drop doses together with half teaspoonful of sweet spirits of nitre repeated every hour will help to allay the fever and congestion of the throat, and goes far to prevent pus formation which is usually spoken of as Quinsy sore throat. This abscess, if formed, may be evacuated by the physician, who alone should attempt it, as the region is a dangerous one, being close to the carotid artery and jugular vein, which would cause instant death if cut.

It has been found that Tonsilitis is apt to be recurrent and that he who has suffered once is very prone to have one or more attacks annually thereafter. This class requires constitutional treatment in the intervals as outlined below.

These inflammations are likewise found to be an expression oftentimes of rheumatism, and need corresponding treatment. But the only *cure* is to be found by cutting off the tonsils, after the inflammation has subsided. This will put an end to the attacks at once.

Tonsils which are subject to these periodical attacks of acute inflammation are always more difficult than others to operate upon, as they are almost invariably bound down very tight to the throat, and cannot be raised up for convenient excision.

Chronic Inflammation of the Tonsils.

IN many of the follicular diseases of the throat, these glands are affected by a chronic inflammation, and are found enlarged, and sometimes very much hardened. In such cases they secrete a thin, unhealthy, irritating fluid, which is spread over the throat, increasing and perpetuating its disease. Much of this secretion finds its way into the stomach, and thence into the circulation.

In the throats of many young persons and children, these glands are permanently so large as nearly to fill the fauces. The respiration of many children thus afflicted is difficult, and when asleep they can only breathe with the mouth open. The defective breathing of such children often occasions contractions of the chest, and thus lays the foundation for consumption. From these diseased parts, the inflammation often spreads upwards, into the posterior nares, and many times enters the eustachian tubes, causing deafness or pain in the ears. Such children often breathe as though they had a bad cold in the head. Their health and safety require an immediate attention to this state of things.

Chronic inflammation of the tonsil, likewise the recurrent acute form, may be dependent on poor blood or rheumatism. Those causes are met by blood-building medicines like Syrup of the Iodide of Iron in 10-drop doses three times daily, cod liver oil, and by some one of the many preparations of iron, arsenic, and strychnia combinations. It is found that generally the excision of the tonsil may be averted by visiting the surgeon, who will hunt out the little crypts or holes with which the gland is studded, and by gently cutting the narrow

bridges which separate these holes, destroy these cavities. These little holes retain small particles of food and decomposed secretion, which after a while, if allowed to remain, set up a follicular tonsillitis. The size of the gland is thus greatly diminished and the little secreting follicle destroyed. Many a little sufferer can thus be spared the harsher method of excision, and bear with good grace, especially if cocaine be used, what otherwise might be a painful and bloody operation. But, as has been said, excision in many cases must be resorted to.

Curability of Throat Diseases. — I have dwelt somewhat upon the preceding forms of throat disease, because they prevail to a fearful extent, and are, in thousands of cases, but the first stages of fatal disease of the lungs.

If not connected with lung disease in the *beginning*, my experience in treating them enables me to say, emphatically, they are generally *curable*.

But patients often put the question to me — “If cured, will I ever have the complaint again?” My answer is — “Unless I can plant in your constitution a better protection than your Maker put there at your creation, you will of course be *liable* to a second attack.” But then, where the lungs have been entirely free from disease, I have never yet seen a case of simple throat complaint relapse and become *dangerous* after proper treatment with the syringes. Let not those, therefore, who have been benefited, but not entirely cured by this treatment, undervalue what has been done for them. Even in such cases, the advantage derived to them amounts to just the value they attach to *the continuance of life*.

Dangers of Delay. — In closing these remarks, let me warn the reader against the dangers of delay. Many of those who finally seek medical attendance in these complaints, first try all nostrums, and tamper with their disease till the case is either critical or hopeless. Too many wait till they are near enough to the engulfing whirlpool to hear it roar, before they seek in any practicable way to escape its dangers.

Many persons neglect a slight inflammation of the pharynx, which might have been cured in a few days, but which, from long neglect, has gradually crept down the windpipe, spread over the widely distributed mucous lining of the bronchial tubes, and thus become curable only in a partial degree, and after long and tedious treatment. Hundreds of persons are now suffering from slight attacks of this sort, who might be rid of the affliction in a week or a fortnight, but who will either carelessly give it no attention at all, or resort to use less nostrums, until it has run through its primary stages and invaded the constitution, and will finally die of some of the forms of pulmonary disease.

A Cold. — Influenza.

A SLIGHT attack of the disease about to be described, affecting only here and there a person, and lasting only for a few days, is called a *cold*. When it affects a large part of the community at the same time, lasting many days, or even weeks, it is then an epidemic, and passes under the name of *influenza*. In this latter form, it sometimes spreads over a whole country, and has at times, as in 1832 and 1894, extended to nearly the whole civilized world. It often shows marked severity in its progress, and leaves serious results behind.

Symptoms.—A tingling, with dryness, and a sense of fulness in the mucous membrane of the nose, are among the first indications of an attack of this complaint. Sneezing is a common symptom. Soon pain is felt in the forehead, and breathing through the nose becomes difficult. The eyes are red and watery, the throat is sore; there is a dry cough, hoarseness, thirst, general lassitude, chills, and a desire to get near the fire. The mucous membrane of the nose, throat, windpipe, and breathing-tubes is inflamed, red, swollen, and sometimes painful.

In a short time, water begins to run from the nose and eyes, and the cough becomes a little more moist. There is also a slight discharge from the throat and tubes, which gradually increases, and, at length, as the disease declines, and becomes less acute, the expectoration is thick and yellow.

Aching of the back and limbs, thirst, loss of appetite, flashes of heat, and chills whenever the patient is exposed to air a little cooler than he is accustomed to, are almost constant attendants upon the disease.

Causes. — It is not always easy to say what the causes of this complaint are. Frequently, it can be traced to an improper exposure to cold or dampness; but in a great majority of cases, especially when it takes the form of influenza, the causes are not obvious. They probably exist in some peculiar states of the atmosphere, and in a depression of the nervous system.

The influence upon disease of the different degrees of density in the air which surrounds us, and of other circumstances affecting it, have not been much studied. Some valuable facts will be drawn from this source before many years. The putting upon the body, or taking from it, several tons of pressure every time the barometer rises or falls, must have, of itself, no small influence upon its health. The comparatively new science of Physical Geography, by spreading before us its interesting facts in regard to temperature, storms, atmospheric currents, etc., is opening the way for the physician to learn a great deal more about the causes of disease than he now knows.

Treatment.—In mild cases, only the most simple treatment is required,—such as remaining in the house for a few days, soaking the

feet in warm water, taking a gentle sweat, drinking warm infusions of flax-seed, mullein, slippery elm, or warm lemonade, and taking only a spare vegetable diet. If the bowels be costive, some gentle physic (34), (41) may be used. A laxative drink (132) will likewise be useful.

. At the outset, especially when the nose runs water, a small dose of atropia, $\frac{1}{200}$ grain, taken every two hours till the throat is dry, will entirely arrest the disease at this point. The coryza pill found at the druggists' is a more valuable remedy still.

When the attack is more severe, sweating must be induced by decisive measures. This may be affected by the spirit vapor-bath, or by putting the patient in bed, putting bottles of hot water to the feet and sides, and administering warm drinks, and the compound tincture of Virginia snakeroot. Five drops every hour of the tincture of veratrum viride will often cause very free perspiration, and will reduce the inflammation upon the mucous surface.

An emetic is sometimes very useful. To produce vomiting, use the powder of ipecac, ten to twenty grains, or the compound tincture of lobelia.

It soothes the inflamed mucous surfaces very much to inhale the vapor from half a pint of hot water, with five drops of tincture of veratrum viride, or the same amount of the tincture of aconite root.

If the cough is severe, use the preparations recommended under bronchitis and consumption.

In the latter stages of the disease, if there be debility, — as there generally is, — quinia, iron, nux vomica, etc. (75), should be taken; or, to support the nervous system, the extracts of scullcap, and bone-set, and the sulphate of quinia (81) will be found useful. At this stage of the complaint, the diet should be more liberal and nourishing.

The patient should not venture into the open air until the unpleasant sense of chilliness, peculiar to the disease, ceases to be produced by exposure.

La Grippe.

THIS is a variety of influenza with which the world has become well acquainted within the last few years. Its history is interesting and its symptoms and results are severe and annoying. It is one of the most severe forms of catarrhal disease of the nose or throat with which we are acquainted. It owes its origin to a germ which found its birth in the filth and pollution of eastern Europe, and has visited the globe with terrible ravages on several occasions since the Middle Ages. It spreads by travelling the most frequented paths of commerce, and attacks those in a depressed state of health. The varieties of la grippe are as numerous as that of any other disease. The *catarrhal* form is much like that of ordinary head influenza, only it is more severe and prostrating; the *bronchial* assumes the influenza type, at first, but soon attacks the lungs and sets up a severe, prolonged and

harassing bronchitis; the *intestinal* variety, besides producing the general symptoms of malaise, fever, cough, severe aches and pains, gives rise to a diarrhœa which lasts many days and is very debilitating; the most common variety, however, is the *rheumatic*, which is ushered in by chills, fever, muscular pains, coryza, cough and general rheumatic pains. The characteristic feature of all of these forms is the great prostration which accompanies these symptoms and the obstinacy with which it clings to the patient.

The sequelae of the disease, though much exaggerated, are numerous. The aged are often left infirm with heart weakness, the young with lessened resistance to disease, and the middle-aged with chronic coughs.

Many an undiscovered disease has passed unnoticed under the disguise of "la grippe." It has no doubt served as a broad mantle to cover our ignorance of real disease and been made an easy refuge for the complaining; still its affects at times cannot be over-estimated, and death has not infrequently resulted.

Treatment.— The onset is to be met with large doses of quinine, say 10 grains on retiring, by phenacetine and salol, 10 grains each, taken with some hot lemonade on retiring. This latter may be repeated every three hours. The coryza is checked by small repeated doses of belladonna, camphor and quinine, as found in the coryza tablets bought at the druggist's — one taken every two hours till the throat is dry, then once in four to eight hours. The debility is to be met by tonics.

Acute Inflammation of the Epiglottis.

THIS is the disease by which our country lost its most loved and distinguished citizen, George Washington. This complaint was not understood at the time of his death, — the intelligent physicians who attended him supposing it to be inflammation of the windpipe. From their very clear description of the symptoms, we now know it to have been an acute inflammation of the epiglottis and glottis.

From the rapid inflammation of the epiglottis, water is effused into this cartilage, so as to puff it up, and prevent it from shutting down in the act of swallowing. The lips of the glottis are swollen from the same cause, and brought so near to each other that air passes through to the lungs with great difficulty, and unless relief is soon obtained, the patient is strangled.

Symptoms.— The disease begins with a severe chill, accompanied with some pain, and a sense of stricture or tightness in the upper and fore part of the throat. There is cough, with difficult and sometimes painful swallowing. These symptoms are soon followed by quick and laborious breathing. Speaking aloud is from the first difficult, and soon becomes impossible. As the complaint runs its rapid course, the breathing grows more difficult, and death soon results from complete strangulation.

Treatment.— Apply immediately to the parts a strong solution of nitrate of silver. The solution should be of the strength of ninety to one hundred and twenty grains to the ounce of soft water. It should be applied every hour or two till the feeling of suffocation subsides, and should be done with the laryngeal shower syringe, though if this is not at hand the sponge probang may be used.

While this local treatment is being employed, liberal doses, from five to twenty drops, of tincture of veratrum viride should be given every hour, watching the effect, and discontinuing when the pulse sinks too low.

Hot fomentations applied externally, and filling the room with steam, as recommended in cases of croup, would be useful.

Mumps. — *Parotitis.*

THIS disease appears most often among children; but as it is not confined to them, I have not placed it among their complaints.

Symptoms.— It begins with soreness and stiffness in the side of the neck. Soon a swelling of the parotid gland takes place, which is painful, and continues to increase for four or five days, sometimes becoming very large, and making it difficult to swallow, or open the mouth to receive food. After the fourth or fifth day the swelling subsides, and disappears in from seven to ten days.

Both glands generally swell about the same time, but sometimes the swelling appears in one only after it has subsided in the other, and occasionally the swelling is wholly confined to one side.

When the swelling is great, there is heat, and sometimes fever, with dry skin, quick pulse, furred tongue, constipated bowels, and scanty and high-colored urine.

The affection is sometimes translated, as we say; that is, in females, the breast swells, and in males, the testicles become swollen and painful. This accident generally happens in consequence of taking cold from some imprudence.

The disease is contagious; that is, it is communicated from one person to another.

Treatment.— In mild cases, very little treatment is required. Keeping the face and neck warm, avoiding exposure to cold and damp, drinking warm infusions of balm, spearmint, or sage, and apply a poultice of flax-seed over the glands until the patient is fully relieved; or the compound powder of jalap, if there be costiveness, is about all that is required. The diet should consist of rye hasty pudding, or brown bread and sweetened water.

If the case be severe, and other glands swell, physic must be freely used, leeches must be applied, and cooling lotions, or poultices. Sweating must also be induced by the compound tincture of Virginia snakeroot, or by a vapor bath.

In young girls mumps often attack the ovaries and make the invalid a great sufferer for a few days ; the testicle of the male is similarly affected at times. These complications call for soothing applications and rest in bed.

DISEASES of the CHEST

DISEASES OF THE CHEST.

(Also see **Anatomy of the Lungs and Respiratory Organs.**)

Consumption. — *Phthisis.*

As it was asserted a short time ago that the incurability of consumption was an acknowledged fact, it is encouraging to know that in many instances now we may effect a cure even under relatively poor conditions, also that many persons have the disease and get well of it without their knowledge. This is proved by the large number of cases that have come to autopsy for death from some other cause and the diseases of the lung which has healed are discovered. If the disease can be taken in hand early enough and the constitution of the person's body protected from these ravages by appropriate climatic conditions, good food, and possibly a little medicine, we are justified in thinking that a favorable outcome will occur. It is necessary to keep the weight of the person maintained and especially the digestion more than good.

Marriage should be avoided by anyone afflicted with the disease, as the bearing of children on the part of the woman will often cause the disease to take a fresh start and the extra effort required by the husband to maintain his family will do the same for him. It is only fair to the friends surrounding the patient that precautions should be taken to prevent the contraction of this disease from one whom they are trying to help, as the disease is propagated by the increase of the germ known as the bacillus of tuberculosis; we must destroy this organism as soon as it is expelled from the person.

In the expectoration these germs are present in very large numbers and in singing and coughing they are sent into the air to possibly be inhaled and land on new soil for future trouble. The kiss of a consumptive is very dangerous and even the use of toilet articles which have been used to wipe the nose or mouth is dangerous until they have been boiled. All expectoration should be received in articles which can be burned before they become dried, and if the person is confined to the house they may be received in an earthen vessel which holds a solution of disinfectant such as carbolic acid, 1 part of the pure acid to 20 of water, or corrosive sublimate, 1 part to a 1000.

It is for this reason that the boards of health of all the large cities of the United States and Europe within the past few years have passed ordinances prohibiting expectoration of sputum on the sidewalks, floors of cars, at stations or public places, and the disease is now reported to

them by physicians under penalty of fine in the same manner as small-pox and diphtheria. Sunlight is another prevention, for this germ cannot live in the rays of the sun and this is taken into account in our treatment of the patient, as good air and sunlight are perhaps the most important aids in helping us to get the better of the disease.

Methods of Examining the Chest. — Before speaking further of consumption, I propose to do what has never been done, namely, to instruct the general reader very briefly in the method of examining the chest to learn the existence of disease. Perhaps this will be considered a departure, in some slight degree, from my purpose to make this entire book intelligible to the general reader. If so, my reply is, that there are *many* school teachers, mechanics, masters of vessels, and farmers, who have inquiring minds, and sagacity enough to learn the physical signs of chest-disease, and to make them, in many cases, practically useful; and that even readers of little reflection cannot fail to comprehend a portion of my explanations.

Position of the Patient. — In performing percussion upon the front of the chest, the patient should be required to sit in a square position, with the arms hooked over the corners of the back of the chair, and the head thrown a little back.

Instrument with which to Thump. — The index and middle fingers of the right hand are to be brought together, into a line, and used as the percussing instrument. The blow given with these is to be *smart* and *quick*, rather than heavy.

Medium to Thump Upon. — Either the index or middle finger of the left hand is to be pressed firmly upon the surface of the chest to be percussed or struck, and thus used as a pleximeter.

Auscultation. — Listening for the purpose of hearing within the chest the sounds produced by breathing, talking, coughing, etc., is called auscultation.

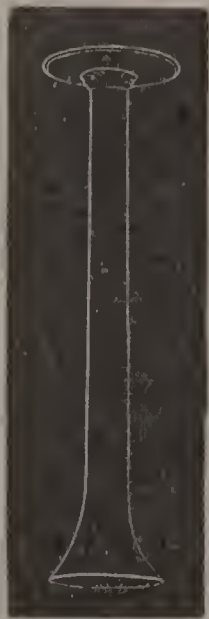


FIG. 90.



FIG. 91.

Instruments with which to Listen. — The naked ear is generally considered best for hearing low and delicate sounds; but for hearing

loud and rough ones, it is not so good as the stethoscope, represented by Fig. 90. A still better instrument is the double-eared stethoscope, Fig. 91. It magnifies the sounds very much, and is apt to confuse an examiner not accustomed to it; but when the ear is once familiar with it, the aid it affords is very valuable.

The examiner should pass from side to side, continually *comparing* the sounds upon one side, with those upon the other.

The patient must be calm, and the examiner in no hurry.

Healthy Sounds. — To become skilful either in percussion or auscultation, the examiner's ear must first be trained to healthy sounds.

These are best heard in the child, in whom they are louder than in the adult.

In describing the healthy sounds in the different regions of the chest, I shall refer the reader constantly to Figs. 92 and 93.

Clavicular Region. — This, in Fig. 92, is represented by 1, 1. Upon thumping upon the collar-bones, the sound given out at the breast-bone end should be very clear; less clear in the middle; and dull at the shoulder end.

Subclavian Region. — This is represented by 2, 2, and lies between the collar-bone and the fourth rib, on both sides. It covers a considerable portion of the upper lobe of the lungs. The sound upon striking this place should be very clear.

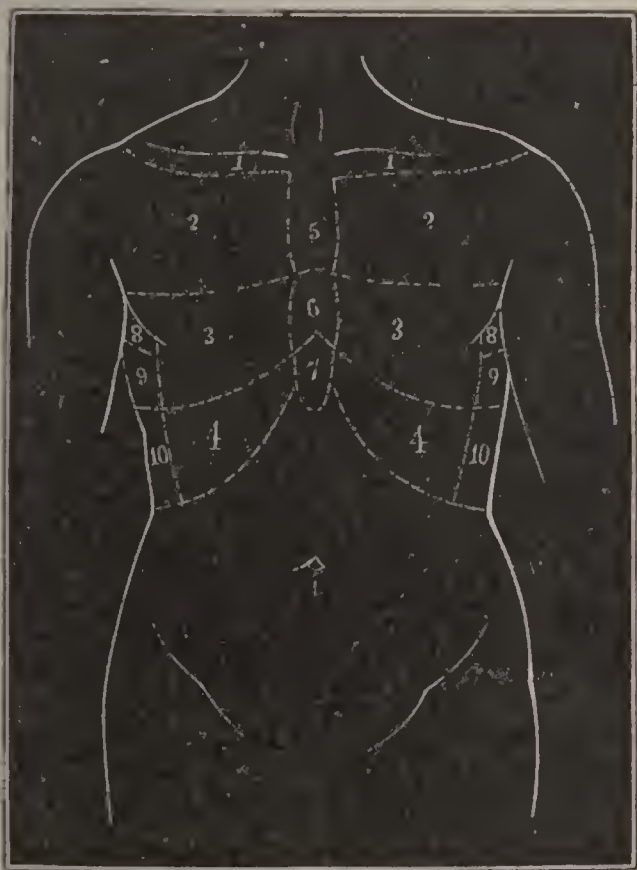


FIG. 92.

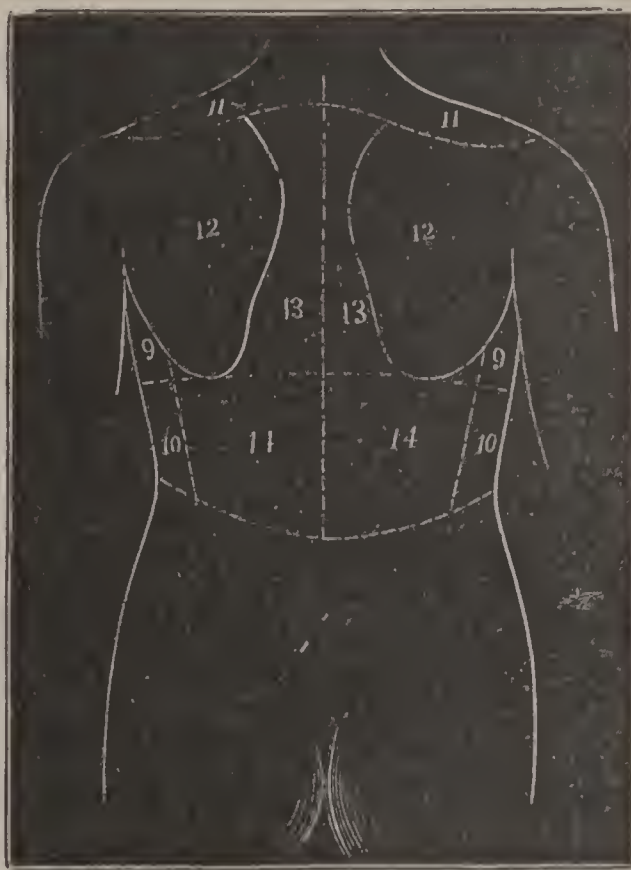


FIG. 93.

The Mammary Region, represented by 3, 3, extends from the fourth to the seventh rib, on each side. In the upper part of this region, the healthy sound is clear; but at the bottom of it, on the right, the sound is deadened by the liver; on the left, by the heart.

The Infra-Mammary Region, 4, 4, lies between the seventh rib and the edge of the cartilages of the false ribs. On the right side, the liver makes the sound dull; but under the left side lies the stomach, which is hollow, and the sound is generally quite loud.

In the Sternal Region, 5 6, 7, which covers the breast-bone, the sound is generally clear.

The Axillary Region, 8, 8, is in the arm-pits. In this the sound should be clear.

The Lateral Region, 9, 9, is immediately below the above, and yields, likewise, a clear sound.

The Lower Lateral Region, gives a dull sound on the right side, and on the left a very hollow one.

Fig. 93 represents the *back* part of the chest. In looking at this, we see the

Acromial Region, represented by 11, 11. In this space the sound is dull, but it has not much meaning.

The Scapular Region, 12, 12, covers the part occupied by the shoulder-blades. It gives rather a dead sound.

The Intra-Scapular Region, 13, 13, lies between the shoulder-blades, on each side of the back bone. If the patient's arms are crossed, and the head bent forward, a clear sound will be obtained.

The Dorsal Region, 14, 14, covers the base of the lungs, and, in health gives, a clear sound.

Observation. — If, now, on thumping upon the chest, we find a dull, dead sound in any spot where a clear one ought to be yielded, we are to conclude that underneath there is not the usual quantity of air; but we cannot tell *merely* by percussing, whether tubercles are deposited there, or the lung has become solid by inflammation, or water has been poured out into the cavity of the pleura. *This* point must be determined by auscultation, etc., to be explained gradually as we go along.

Auscultation of Breathing. — On applying the ear or the stethoscope to the chest, two sounds are heard which immediately succeed each other, — the louder is produced by the ingoing breath, or inspiration; the weaker by the outgoing breath, or expiration. These sounds will be further explained as we go along.

Auscultation of the Voice and Cough. — The chest of a healthy person speaking communicates to the ear no distinct sound, but only a vibratory sensation, called, in technical language, the *pectoral fremitus*.

Over the larynx and windpipe, the examiner may hear natural pectoriloquy; between the shoulder blades, in the space corresponding to the roots of the lungs, natural bronchophony.

Philosophy of Chest Sounds. — The fullness and clearness of sound upon percussion, depends upon the amount of air in the chest.

The sounds called *breathing murmurs*, are caused by the expansion and contraction of the air-cells or vesicles, as the air passes in and out; hence they are called *vesicular* murmurs.

The friction of the air against the sides of the windpipe and large bronchial tubes causes the blowing sound heard in those parts.

In children a larger amount of air enters the lungs, and the air vesicles are expanded with more force; hence their breathing has a louder sound, which is called *puerile* respiration. This kind of breathing, heard in the grown person, is a sign of disease.

The lung tissue is a bad conductor of sound; and the voice is accordingly heard only over those parts where large bronchial tubes are near the surface; heard elsewhere, it indicates disease.

Division of Consumption. — Consumption may be divided into two kinds, the tubercular and the bronchial. The former has a constitutional, the latter a local origin.

First Stage of Tubercular Consumption.

Physical Signs. — Dullness of sound on and under the collar-bones. Inspiration shortened; expiration augmented both in duration and intensity. This dullness often first perceived in armpits, or at base and back of lungs.

Occasionally a pulmonary, crumpling sound. Dry, crackling rattles.

The resounding of the voice increased at the top of the lungs.

General Symptoms. — A sense of weariness and languor.

Occasionally, slight, flying pains about the chest and shoulders.

A peculiar sensitiveness to the effects of cold.

Breathlessness on moving quick, or ascending a hill or stairs.

In many cases a blue lividity of the lips and roots of the fingernails, and coldness of the hands and feet.

Occasionally, in females, even at this early stage, a cessation of the monthly turns. These usually stop later in the disease.

Observations. — The formation of tubercles almost always begins at the top of the lungs. Laennec and others thought they appeared oftenest on the *right* side first; Louis, Andral Watson, Sir James Clarke, and others, believed they appeared more often on the *left* side. Recent investigations show that they were all mistaken. Tubercles appear first about as often upon one side as upon the other.

The pulmonary crumpling sound is caused by a mechanical obstruction to the expansion of the lungs. It is generally heard only during the drawing in of the breath. The sound is like that produced by blowing upon very fine paper.

Second Stage.

Physical Signs. — *Marked* dullness of sound on the collar bones, and extending below them.

Inspiratory murmur *diminished* in duration and intensity; expiratory murmur *augmented* in both.

In upper lobes of lungs, moist, crackling rattles, succeeded by mucous rattles. Also bronchial respiration, or tubular breathing.

In lower lobes of lungs, puerile respiration.

Sounds of the heart heard under the collar bones.

Bronchophony heard in the same parts as bronchial respiration.

General Symptoms. — A quickened pulse; slight fever towards evening, oftentimes amounting to quite high fever.

Great susceptibility to the effects of cold, and liability to take cold easily.

Bowels generally costive; oftentimes seat of pain.

The eye has a peculiar whiteness and lustre.

The skin and mouth become dry in the afternoon; chills occur about midday, followed by fever, during which the cheeks are flushed.

As the second stage advances to its close, a dry, burning heat afflicts the palms of the hands and soles of the feet.

Night-sweats occur at this time.

Observations. — A hollow, elastic body, containing air, gives, when struck, a clear sound. The dullness of sound on percussing the chest, arises from the absence of air in the air-cells, — these having been pressed together, or obliterated by the deposit of a mass of tubercles. The destruction of these cells causes the cessation of the respiratory murmur.

This stage of the disease is often accompanied by an inflammation of the mucous membrane lining the air-tubes. The air, pushing its way through the mucous secretions in these tubes, forms bubbles, the bursting of which causes the rattle. The crepitant rattle is produced by inflammation around the tubercles. The moist, crackling rattle is caused by the softening of the tubercles.

The lungs, rendered more solid by the deposit of tubercles, become better conductors of sound; and this causes the beating of the heart to be heard as far off as under the collar bones.

Bronchial respiration gives the idea of air blown through a tube; cavernous respiration, of air passing into a large enclosed cavity.

Third Stage.

Physical Signs. — In this stage cavities are formed. If the cavities be small, and considerable tuberculated lung surrounds them, the sound, upon percussion, is still dull.

If the cavity be large, and near the surface, there is occasionally a tympanitic sound with musical tone.

Sometimes a sound is heard like striking a cracked pot.

Gurgling; cavernous rattle; cavernous breathing; amphoric breathing; now and then, metallic tinkling; pectoriloquy; cavernous cough.

General Symptoms. — Great loss of flesh, and weakness; diarrhoea and night-sweats; swelling of the feet and legs; sore mouth; and raising of matter with specks of tubercle in it like crumbs of cheese.

Observations. — The gurgling rattle is caused by air displacing liquids, and the formation and bursting of bubbles. It resembles the sound produced by blowing through a tube immersed in soap-suds.

Cavernous breathing is nothing more nor less than the sound produced by air, breathed in and out, entering and retiring from a cavity. The air appears, sometimes, to one listening with the stethoscope, as if it were sucked into his ear during inspiration, and blown back again during expiration.

Amphoric respiration is simply an *augmentation* of cavernous breathing, and results, of course, from an increase of size in the cavity.

In pectoriloquy, words uttered by the patient seem to pass through the stethoscope into the ear of the listener. The cavity should be empty, moderate in size, and have dense walls, in order to furnish the best specimen of this sound.

Air suddenly driven backward through the windpipe, and out of the mouth and nose, by smart raps upon the chest over a cavity, gives the sound of the cracked pot. It is best heard when the patient's mouth is partly open. The same sound is produced, on the same principle, by locking the fingers of the two hands, and joining the palms, so as to leave a small space or cavity between them, and then expelling the air from that cavity, by gently striking the back of one hand upon the knee.

Causes of Consumption. — The human constitution, as shown by Liebig, in his profound work on Animal Chemistry, is governed by two forces, the nervous and the vegetative. The former disposes the particles composing the body to a state of motion; the latter inclines them to a position of rest.

In vegetative life there is motion in one direction only, so to speak; that is, motion which tends to the opposite of motion, namely, rest. In vegetables, whose life is wholly under this power, there is no waste; for here, all ultimate particles, having once taken a place of rest, remain undisturbed. In a tree, a layer of matter once deposited, always remains. Hence there is *growth* as long as the tree lives. There is no power to break up and destroy.

But in the animal body there is motion in two directions, or a circuit of motion. Particles which under the vegetative force have been put to rest, are perpetually being displaced by the nervous energy,

and reduced to unorganized amorphous compounds, to be burned in warming the system, or cast out by the several excretory processes.

So constant is the action of these two forces, that John Hunter compared the human system to a whirlpool, into which the particles of matter are perpetually poured, under the influence of the vegetative power, and out of which they are as constantly whirled by the nervous force.

By a little reflection upon these antagonisms, the reader will see that it is just when the vegetative force transcends the nervous, that the body increases in weight, and acquires that state in which the blood corpuscles abound, and the tendency, if to disease at all, is to that of the inflammatory kind. It is the tonic condition of the system. Nutrition is more rapid than destruction. New particles are laid down faster than old ones are taken up. The body *grows*.

On the other hand, when the nervous force overmasters the vegetative, when the outward or centrifugal motion of the whirlpool prevails, then it is that the body is attenuated, the blood thinned and made serous, and the consumptive or atonic condition is established. *Now*, there is too much motion. The nutritive particles, instead of tending to a state of deposit for the re-supply of waste matter, become fugitive in their habits, perpetually fleeing, like convicts escaped from prison. Introduce this power, in excess, into the vegetable kingdom, and the matter deposited upon the tree, instead of remaining to swell its bulk, would be driven off by the nervous force; and the tree, instead of growing, would be annually *lessened*, become sickly, and die of consumption.

In Tubercular Consumption, the system is like a field deluged by a flood; nothing can take root. The repeated shocks of the nervous battery sent to the absorbents so quicken them in their work of removing waste matter, that they dislodge much which is not yet worn out, and assist in casting out of the system not a little designed to be used in its renewal. A healthy deposit is thus prevented, and nutrition is at an end. The nutritive arteries, those little builders of the human frame, are overmastered by the stimulated lymphatics; the constructive material is wrested from them, and borne beyond their reach, and the body wastes from want of nourishment. The blood becomes thin and watery; and from the increased serous portion, chiefly albumen, are deposited upon the lungs and other tissues the albuminous tumors called tubercles.

Here is found the cause of that peculiar smallness of bone and muscle, and thinness and tallness of person, so peculiar to consumptives. The absorbents, under the power of a very active nervous system, take down "the house we live in" faster than the nutritive arteries, confused by the motion around them, can effect its reconstruction. It is simply an unbalancing of the antagonistic forces, which build and pull down our earthly tenement. The men that demolish are more numerous and better fed than the artisan builders

It is this destructively nervous force which gives to consumptive persons their proverbial mental activity; which causes them often to dazzle the world with the splendor of their gifts, and to bless their friends with the warmth of their affections. They are usually the *choice spirits*, the idols of their relatives, and the favorites of the community in which they live. Their mental movements, and the exercise of their affections, are characterized by brilliancy and warmth. Of all persons, they are best fitted to enjoy life, and to impart happiness. Loving all, they are by all loved in return. They are specimens of partially etherealized humanity, stepping lightly across the earth, to whom friends passionately stretch out their arms, and embrace — their shadows!

These views will appear the more reasonable, if we consider that in children the vegetative power is very active, while the nervous energy is comparatively weak. The preponderance of the former over the latter causes the rapid growth of children. The little arterial builders work faster than the lymphatic demolishers. This explains why so few children die of consumption.

But from the age of seventeen to thirty-five, when the vegetative power is losing something of its extraordinary activity, and the nervous force is showing its highest capabilities, — then it is, as this theory indicates, that tubercular consumption does its dreadful work, — then, that the outward world of this physiological Maelstrom casts upon the shores of mortality so many thinned, exhausted, and lifeless human forms. More than three-fourths of all who sink under this disorder die between the ages just named. The brain, between these points of time, acquires its full size and force.

This disease prevails most, too, in those countries where an enlightened civilization gives to the nervous system its fullest development, as in Great Britain, France, and the United States, and in those where the nutritive process is most retarded by a relaxing climate; and it is scarcely known among those people who are but little enlightened and have small brains, and among those who live in high and invigorating latitudes. As the most enlightened, however, are generally found in temperate climates, and those with the least cultivated brains in low latitudes, the rule is not perfectly explained by facts; yet it shows itself sufficiently to establish its validity, and to afford another proof of my theory.

Bronchial Consumption.

THE persons exposed to bronchial consumption are generally of an opposite habit to those described above, — having the nervous force, in health, well subordinated to the vegetative, the assimilation good, and the blood well supplied with red globules. They have usually a full habit and an active circulation. The absorbents, and other vessels in the lungs, working in the midst of a large amount of caloric

evolved by an energetic respiration, often take cold, which brings on lung-fever and pleurisy, and these lay the foundation for the ultimate destruction of the lungs. For the same reason, the skin of this class of persons becomes diseased, and more often the inner skin, or mucous membrane, and most often that portion of mucous membrane which goes down into the lungs and lines the air-tubes. It is inflammation of this which constitutes bronchitis, and which lays the foundation for true bronchial consumption.

As that class of persons who are exposed to the tubercular form of the disease suffer a general loss of carburetted hydrogen in its several forms, colliquative diarrhoea, sweats, increased breathing, and all conditions that carry fat out of the system, so those who suffer from attacks of the bronchial type of the disorder are generally afflicted with the opposite condition. They have too much carbon.

It is well ascertained that carburetted hydrogen, accumulated in the system, acts as a poison. And that class of bilious persons who are subject to this disease often have their *excretions* badly performed. For this reason, carbonaceous compounds accumulate in the system, and give rise to the symptoms of morbid poison circulating in the blood. This led Dr. Madden to suspect the presence of such poison in the blood of all consumptive persons. He saw the evidence of it in numerous cases, and not distinguishing the one class from the other, he inferred its presence in all.

Constitutional Difference.

THE constitutional difference between the two forms of consumption appears to be this: the tubercular type is usually attended, in its origin, by a tolerably good state of the digestive function, in connection with bad assimilation; while the bronchial form generally has its foundation laid in connection with bad digestion, accompanied with healthful assimilation. In the former case, the food is well digested, the pabulum is properly prepared, but the nutritive arteries do not use it for renewing the tissues. In the latter case, the digestion is bad, the pabulum poorly elaborated; but the re-constructive vessels, under the control of a well-developed system of organic nerves, use it to the best advantage. In the one case there are good brick-makers, and lazy brick-layers; in the other, the reverse.

It happens, however, that before the fatal close of the disease, tubercular patients usually become afflicted, more or less, with bad digestion, and bronchial patients with defective assimilation; so that, in the end, they present us with much the same class of symptoms. Starting from opposite poles in life's celestial sphere, they meet at the culminating point of death, and disappear under identical aspects of the heavens.

Exciting Causes of Tubercular Consumption.

THE preponderance of the nervous force being the state which predisposes to disease, whatever unduly excites the nervous energy invites an attack.

These causes relate, mostly, to the *prolonged exercise of the intellect, the passions, and the sentiments.*

Few are aware of the mischief done by excessive stimulation of the mind during the most active period of life, — especially if the muscular system be left half developed. Here is where ambitious students commit great errors.

The constant plying of the mental powers, in the present modes of educating children, leads to a dreadful abridgment of human life. Better to train the bodily powers first, and let the mental culture come in later time. He who would build a lasting structure must lay a solid foundation.

The age in which we live abounds in the causes of excitement. The world is trembling with excess of mental life. The pine trees burned by the steam-engine are scarcely more numerous than the human constitutions consumed by the train of thought it has set on fire.

Nor are the passions and sentiments less exercised, or less destructive.

Briefly, the causes of consumption embrace all those things which bring a destructive force against the digestive and assimilative functions, as insufficient and improper food, debaucheries, night-watches, sedentary habits, anxiety of mind, etc.; and those which act injuriously upon the breathing organs, as impure air, inflammation of the lungs, pleurisy, measles, hooping cough, etc.; and such as disturb the sweating process, as insufficient clothing, sudden changes of temperature, sleeping in damp sheets, etc. These exalt the nervous force, or depress the vegetative, or inflame the mucous lining of the air-tubes, or the substance of the lungs, or the membranous sack which encloses them, so as to induce one form or other of consumption on the principles I have explained.

The immediate cause of consumption we know, now-a-days, to be due to a deposit of tubercles either in the neighborhood of the vocal cords, the upper parts of the lungs, or, not infrequently, at the bases of the same. These tubercles contain a germ called the *Tubercle Bacillus*, which can only be seen with a high power microscope, and then only after being stained with certain aniline colors which they absorb. These little germs are of the rod-shaped variety of bacilli, and appear under the microscope as little straight lines or rods about $\frac{1}{16}$ inch in length. Their presence in the sputum of a person means tuberculosis of some part of the air-passages; when they are associated with the presence of yellowish fibres (seen under the microscope) they are a proof of the deposit being in the lungs

proper. The examination of one's sputum, therefore, in the early part of any prolonged and suspicious cough, becomes an absolute necessity, since thereby one is made aware, in the earliest stages, of this dreadful disease, and an opportunity offered of attacking it at once in its incipency. This modern discovery has given rise to much experimentation in treatment with the aim in view of killing out the germ. Robert Koch of Berlin announced to the world, a short time ago, that he had discovered an agent, which he called *Tuberculin*, that would eradicate these death-producing germs, but time has shown his efforts to be unsuccessful as yet, although promising of great results in the future. These germs are contagious in character, so that we now can explain why many contract consumption in whose ancestral blood there never existed any tubercular taint.

We know that husband may impart the disease to wife and mother to daughter if only the system is in a receptive state to offer a lodgment to the germs. These tiny but most enduring bacilli retain their life for an indefinite time in the midst of dust and other dried secretions, so that a practical point is that all persons suffering from tuberculous diseases should be exceedingly careful where they spit and with whom they sleep. To raise the sputum into small paper cups which may be burned is a common and very prudent custom.

This discovery, while not disproving the old theory of heredity, nevertheless explains many a case of acquired Phthisis, and clears up many an old-fashioned theory.

These are indisputable facts from which the medical profession at present hope to derive practical benefit by the discovery of some germicide which may be applicable and safe for internal administration.

Can Consumption be Cured ? — In many cases it can. It may be cured, first, by the absorption of the tubercles. The celebrated John Hunter shows, in his work on the blood, that the absorbent vessels have a sort of *elective affinity*, by which they take up and remove "all adventitious new matter, as tumors" (tubercles are albuminous tumors), more easily "than those parts which were originally formed." Were this not so, an activity in these vessels equal to the removal of tubercles would cause them to waste all the tissues, and aggravate rather than cure consumption. Probably this does occur where proper hygienic means are not used to quicken the excretions. This hygienic treatment, to be spoken of hereafter, is not generally employed, — certainly not as effectually as it should be. Here is the source of Laennec's fatal remark, so often quoted and so widely endorsed, that nature's efforts towards effecting a cure *are injurious*, and those of art are useless." Laennec's position cannot be true, if Hunter's statement is correct. If the absorbents, by an elective instinct, take up adventitious matter rather than the natural tissues, then the reason why they reverse this rule in consumption is, that by a weakened state of the constitution, the ultimate particles *are not*

well put together, and are more easily taken apart than those of the adventitious tubercular tumors; and if we would restore these vessels to their natural activity, we must improve assimilation, and knit the unloving molecules into a firmer brotherhood. We must make the flesh *hard*, so that the absorbents cannot pick it to pieces. Do this, and "nature's efforts to effect a cure" will *not* "be injurious."

A second form of cure is the reëstablishment of the assimilative function, the building up of the general health, the arresting of the tubercular deposit, the reducing of tubercles already formed to an indolent state; and then, by a strict observance of the laws of health, keeping them in that condition through life.

A third mode of cure is the healing of the cavities after the tubercles have softened, broken down, and been expelled in the form of expectoration.

A fourth method of cure is a change of tubercles to calcareous matter. These *calcareous* tubercles, Laennec says, "are consequent to tuberculous affections *that have been cured*." And Andral, at one time, hoped to learn how to effect cures by changing tubercles to "the calcareous phosphate."

I have had several cases of cure by this last method, and have quite a collection of calcareous substances which my patients have coughed up, — one of which was raised in my presence by a lady who was a few years before in hopeless consumption, but is now in good health.

Treatment. — This should be of two kinds, local and general.

The local treatment of consumption is by the inhalation of vapors and powders into the lungs. It has been practised, more or less, by individuals, for many years, particularly in Europe; but for some unaccountable reason, the profession generally have never used it, and do not know much about it. I had the honor, some years ago, to bring it freshly before the American public, in some articles written for popular reading, since which time it has been rapidly gaining public confidence, and is now attracting much attention. Conveying the remedy directly to the diseased parts, it strikes the common-sense mind as eminently reasonable and necessary.

I shall speak of inhalation, therefore, very earnestly, not as a palliative of consumption only, but as far more, as a remedy. After long and patient use, my experience allows me to say, that I know it, in many cases, to be such; and knowing this, I should be criminal not to press it upon the public; for it is the great multitude of sufferers, pressing fast through the gate of death, who need to hear words of hope.

Consumption a General Disease. — It is not denied that consumption is a general disease, needing constitutional treatment; but it has also a local development in the lungs, first in the form of albuminous tumors, called tubercles, and then, after the softening,

breaking down, and discharge of these, in the more formidable shape of ulcerous cavities, which, beginning at the summit, devour the lungs down to the base. Can it be reasonable to apply no remedy directly to this local disease? Not so does our profession deal with other local diseases. To an inflamed skin we apply poultices, cold compresses, solutions of acetate of lead, nitrate of silver, etc.; to leprous or scaly affections, sulphuret of potash, bichloride of mercury, zinc ointment, nitrate of mercury ointment, sulphur, creosote, etc.; to weak and inflamed eyes, sulphate of copper, sulphate of zinc, nitrate of silver, and opium; to chronic ulcers upon the skin, tannin, pulverized rhubarb, opium, or cinchona; and to an inflamed throat, nitrate of silver and other articles. These are but specimens of the thousand cases in which we use local remedies. Why, then, when the mucous membrane, which lines the air tubes, becomes inflamed through all its branches, should we neglect, by the inhalation of medicated vapor, to apply a remedy directly upon the whole inflamed surface? Why, when tubercular matter is beginning to be deposited upon the surface of the air cells, and of the small bronchial tubes, should not the vapor go right to those parts, and cause, as it would, the immediate expulsion of this offending and dangerous matter?

Uneducated common sense sees the reasonableness of these suggestions at a glance. Many a person, with pulmonary disease, dies of suffocation, not because there is not muscular strength to expel the matter which is strangling him, but because the lungs *below* the large pellets of mucus, which plug up the bronchial tubes, cannot be inflated, and have therefore no means of driving out the offending substance. Yet a proper medicated vapor, drawn in with the breath, would either dissolve the mucus, or rouse up the expiring membrane to cast it off.

If the reader were to place one end of a stethoscope directly over the disease upon the breast of a person in the third stage of consumption, and should then ask him to talk, the words spoken would seem to rise up through the instrument, and enter, well articulated, into his ear. This, in technical language, is called *pectoriloquy*,—a word signifying *chest-talking*. It implies a *cavity* in the lung. If now the patient be asked to *cough*, a gurgling and splashing sound will be heard. This denotes that the cavity is partly filled with fluid, which is dashed about by the air explosively driven through it by the portion of lung below. Here we have an excavated ulcer, with all its filthy contents, composed of pus, mucus, serum, and dissolved tubercles, lying in it day and night to aggravate its unhealthy condition. What more reasonable, what more necessary, than that a soothing, alterative, or astringent vapor should be drawn into this cavity, to cause its sides to heal, and its absorbents to remove this fluid? A surgeon who should permit an ulcer upon the surface of the body to remain in that condition without a local dressing would be deemed unfit to practise his profession.

Both in tubercular disease and in simple bronchitis, the bronchial tubes almost always suffer some physical change. The mucous membrane lining these tubes is generally softened. At other times the tubes become enlarged through their whole length, so that many of them, from the size of a quill, reach the bigness of the finger of a glove. In still other cases, the straining produced by coughing causes a tube to belly out at some point, forming a sack, which is generally filled with mucus or purulent matter. At still other times, a tubercle will press against a tube so as to flatten it and convert it into a musical instrument, the air, as it is drawn laboriously through, producing a high or low note, according to the size of the pipe. These physical changes are all produced by causes which the inhalation of a suitable vapor, at the proper time, would almost infallibly remove. How strange that this remedy, — so simple, so effectual, so easily comprehended, — should have been so little used!

Right at this vital point in the lungs, where the blood runs in a ceaseless current, — where the whole of it goes *every two minutes* to renew its vitality by contact with atmospheric air, — we have, in thousands of cases daily occurring, inflammation with roughening or softening of membrane, with its consequent harsh breathing; we have mucus, tough or glairy, to impede and interrupt respiration; we have tubercles in the hard or soft state, adding to the general embarrassment, and not only lessening the vitality of the blood, but disturbing all the sympathies of the system; — and yet the practice has been, and is, to attack these central disturbers of life only through the circuitous path of the stomach, lacteals, etc.

I have investigated faithfully the effects of the various substances proposed for inhalation by European physicians, and have explored a wide field of new remedies, not before used, several of which have proved to have qualities of great remedial power.

The chief remedies I employ for inhalation are the following.

Alterative Inhalant, composed of iodine, six grains; iodide of potassium, twelve grains; tincture of ipecac, one ounce; tincture of balsam of tolu, six drams; ethereal tincture of conium, one and a half drams; alcohol, half a pint. These are to be mixed. The dose is one to two teaspoonfuls, to be inhaled ten or fifteen minutes, in about a gill of hot water.

The ethereal tincture of conium is made by keeping a dram of powdered conium in one ounce of sulphuric ether a week.

The above inhalant is used in the tubercular forms of consumption, particularly that of the scrofulous kind, and in many cases of bronchitis.

Expectorant Inhalant. — Take pleurisy root, half an ounce; squill, one ounce; ipecac, two drams; black cohosh, two ounces; queen's root, one ounce and a half; American hellebore, two drams; diluted alcohol, one pint. Grind the roots, etc., and add the alcohol.

Let the whole stand one week, shaking or stirring daily. Draw off and filter through paper. Two teaspoonfuls make a dose, to be inhaled same as preceding.

This is to be used when the cough is hard and dry, and the expectoration difficult. It makes the raising easy, lessening the soreness of the chest, and the harshness of the cough.

Soothing, Febrifuge Inhalant. — Take belladonna leaves, half an ounce; black cohosh, two ounces; American hellebore, half an ounce; poke-root, two drams; aconite root, one ounce; diluted alcohol, one pint. Grind the roots, etc., add the alcohol. Let the whole stand one week, stirring daily. Pour off and filter through paper. Dose, one to two teaspoonfuls, to be inhaled as the preceding.

This is excellent in all cases where the skin is hot, the pulse quick, the tongue and mouth parched, the chest sore, and the system suffering during the whole or a part of each day, from a general feverish condition. It is proper in all the forms of chest disease.

Astringent Inhalant. — Take of wild indigo, one ounce; catechu, half an ounce; Peruvian bark, one ounce; golden seal, one ounce; diluted alcohol, one pint. Mix, and let the whole stand one week, stirring daily. Drain off, and filter through paper. Add two drams of creosote. One to two teaspoonfuls to be inhaled as preceding.

This is to be used when the expectoration is profuse and easy, unattended by fever, either in the latter stages of chronic bronchitis, when the mucous membrane of the tubes is in a relaxed condition, or, in the third stage of tubercular disease, for the purpose of constringing, cleansing, strengthening, and healing.

Antiseptic Inhalant. — Take wild indigo, one ounce; belladonna leaves, half an ounce; diluted alcohol, one pint. Mix, and let the whole stand one week. Pour off, and filter through paper. Then add solution of chloride of soda two ounces. Dose, one to two teaspoonfuls, to be inhaled as the preceding.

This is used in cases of gangrene of the lungs, generally distinguished by considerable expectoration having a very fetid smell.

Anti-Hemorrhagic Inhalant. — Take witch-hazel bark, two ounces; black cohosh, four ounces. Grind, and add one pint of diluted alcohol. Let the mixture stand one week, stirring daily. Pour off, and filter through paper. Add to this two drams of creosote. Dose, one to three teaspoonfuls, to be inhaled as preceding.

This is an excellent remedy for bleeding from the lungs. When there is a tendency to bleed, it should be used for a long time. It may frequently take the place of No. 4, as an astringent inhalant.

For immediate relief give strong solution of salt water.

Object of Inhalants. — Being vaporized and inhaled, these articles enter every air-cell throughout the lungs. Their object is to soothe and mollify inflamed mucous surfaces, to reduce enlarged bronchial

glands which press upon neighboring parts and cause bleeding, to stimulate the absorbents to take up and remove tubercles, to dissolve tubercles out of the pulmonary tissue, to cause ulcerous cavities to expel their mattery contents, and to stimulate their sides to take on a healing process. They should be used from three to six times a day, the inhalation continuing from ten to fifteen minutes.

Other Inhalants. — Great numbers of other articles have been used, which I have not space to describe. I will mention, however, that the following are sometimes employed with advantage: —

For an Expectorant Inhalant, take alcohol, four ounces; tincture of camphor, half an ounce; tincture of tolu, two drams; naphtha, one dram; benzoic acid, thirty grains; oil of bitter almonds, four drops. Mix.

For an Anodyne Inhalant, take alcohol, four ounces; naphtha, one dram; benzoic acid, thirty grains; chloroform, twenty-five drops; tincture of henbane, half an ounce. Mix.

For an Astringent Inhalant, take alcohol, four ounces; naphtha, one dram; benzoic acid, thirty grains; chloroform, one dram; tannin, eight grains. Mix.

Mode of Inhaling. — For inhaling these, a sponge is fitted into a glass cup, to which a flexible tube is attached. A small quantity of the mixture is poured upon the sponge, and the vapor arising is drawn into the lungs through the tube.

To the expectorant inhalant may be added, occasionally, half a dram of nitric acid.

These latter formulas are the principal ones used by those who practice what is called *cold inhalation*.

A very common mode of inhaling volatile remedies is by saturating a little cotton, contained in a wire basket, with the desired oil or fluid, and placing it over the mouth and nose. It is to be worn throughout the day. Oil of peppermint, creosote, menthol, oil of eucalyptus, etc., etc., are among the more common remedies thus used.

A good inhaler can be bought of any dealer in surgical instruments.

Constitutional Treatment. — The rapid breathing in consumption creates too much oxydation of the blood, — so much, that the muscles, especially the heart, are usually *of a bright red*. To prevent the patient from being literally burned up by oxygen, the blood must be de-oxydated as fast as possible.

While there is too much of oxygen, there is, at the same time, a deficiency of carbon. Hence the cold hands and feet, and the general inability to bear frosty weather. The little nutritive arteries, in these thin-blooded persons, stand shivering and torpid with cold, unable to perform their allotted function of nutrition. There is not fire enough, and fuel must be had in the form of carbon. Hence one of the advantages of *cod-liver oil*. This oil, too, as carbon, devours

the oxygen of the blood, and prevents *its* destroying the patient. This idea also explains the fact mentioned by Bennet and others, that in their post-mortems they found the evidences of healed ulcers in numerous persons who had been *spirit-drinkers* while living. And Liebig helps the explanation by saying that alcohol, taken into the system, circulates in a free state in the blood, and devours its oxygen. To which I beg to add, that the *malaria* of intermittent and bilious fever districts, has been pretty satisfactorily proved to be an instable organic body, consisting of sulphur, carbon, and hydrogen, all of which have an affinity for oxygen, and devour it in the system. Consumption is not found in such districts.

As I am here treating of the chemical effects of remedies (and to this test most remedies must finally come), I will mention that tartrate of antimony and potassa *arrests the circulation in the pulmonary arteries*, — which fact gives a complete and luminous view of its power to prevent oxidation. But I am obliged to detract from its merits, by stating that it *also* retards the circulation in the capillaries of the system generally, and so hinders *de-oxidation*.

Phosphorus. — There is an article which has more recently presented itself to the notice of the profession, to which I wish to invite special attention. I refer to phosphorus. This agent, for a time, challenged our notice in the shape of *phosphate of lime*; but we could never feel sure that this article was dissolved in the fluids of the body. We now use, and with far more marked effect, the hypophosphites of lime, soda, potash, and iron. These are used in the form of the syrup of the hypophosphites. The dose is a teaspoonful before each meal. The effect upon tubercular disease is immediate and gratifying.

Need of Phosphorus. — Cerebric acid contains nitrogen and phosphorus, and is the peculiar component of the brain and nervous system. By combustion and the changes of oxidation in the brain, the phosphorus of cerebric acid is converted into phosphoric acid; so that every act of the brain produces phosphoric acid. How rapid, then, must be the consumption of the phosphoric element of the cerebric acid, in that highly active and excitable state of the nervous system which I have described as peculiar to consumption. And how necessary, in order to save the brain from destruction, to meet this increased demand for phosphorus, by introducing it into the system.

Mulder regards the fibrin of the blood as the *carrier of oxygen*; and by this oxidation, the fibrin becomes converted into the binoxide and trioxide of protein, — its phosphorus and sulphur (for it contains both) being converted into phosphoric and sulphuric acids. Adding phosphorus and sulphur, therefore, as medicinal agents, would seem to be the proper way to supply the fibrin with materials destructive of its freight of oxygen.

It is well known that the salts of phosphoric acid are essential for

the formation of azotic compounds, — compounds which are necessary to sustain animal life. It should be remembered, too, as collaterally illustrating this fact, that the tribasic phosphates of potash, soda, lime, and magnesia, play an important part in the growth and perfection of plants. They are always found in the seeds of the cerealia, and no mature grains are produced where phosphates are absent from the soil. For the production of abundant grain-crops, it is necessary that these salts should exist in the soil, or be applied to it in manures.

It is known, moreover, that in all chronic diseases distinguished by wasting of the tissues, a much larger quantity of phosphates is excreted by the kidneys than in the normal state. Hence there is no healthful growth; and the human organism, like the soil, exhausted of its phosphates by successive croppings, brings nothing to perfection, and needs to have its drained salts re-supplied.

I cannot but call attention here to the inorganic substances found in healthy human blood. According to very careful analyses, by Schmidt:

1000 parts of blood-corpuscles, contain :		1000 parts of liquor sanguinis (serum and fibrin), contain :	
Chlorine	1.686	Chlorine	3.664
Sulphuric Acid	0.066	Sulphuric Acid	0.115
Phosphoric Acid	1.134	Phosphoric Acid	0.191
Potassium	3.328	Potassium	0.323
Sodium	1.052	Sodium	3.341
Oxygen	0.667	Oxygen	0.403
Phosphate of Lime	0.114	Phosphate of Lime	0.311
Phosphate of Magnesia	0.073	Phosphate of Magnesia	0.222

Iron is omitted. Now, I venture the prediction, that out of these figures, mainly, in connection with those which represent the constituents of the saliva, the bile, the gastric juice, the pancreatic secretion, and the organic compounds of the blood and tissues, are to be evolved within a few years a correct and partially demonstrative system of medication. In consumption, all the inorganic bodies represented by the above figures, with the exception of oxygen, are deficient in quantity. By reflecting upon the proportions of these several bodies, particularly upon the large amount of chlorine and soda in the plasma, and of potassium in the corpuscles, the mind can hardly fail to obtain useful hints. I have not hesitated to make one of these hints the ground of a very free use of alkalies, — particularly in the form of bathing.

Sugar of Milk. — There is one other medicinal article which I deem worthy to be made prominent, and to be placed side by side with cod liver oil and the hypo-phosphites. I refer to *sugar of milk*. It belongs to that class of non-nitrogenized articles which Liebig has denominated supporters of respiration. Its great affinity for oxygen is well worthy to be taken into the account, in considering its value in consumption. So great is this attraction, that, with ammonia and other alkalies, it has the power of reducing some of the metallic oxides.

When taken into the stomach, it is rapidly absorbed into the blood, which, being an alkaline fluid, augments its great de-oxidating power to a considerable degree. It unites rapidly with oxygen after entering the blood, forming carbonic acid and water. A part of it, however, does not enter the blood in an uncompounded state, but is changed in the stomach into lactic acid; and this, in the blood, becomes an alkaline lactate. But the portion thus changed appears also very useful; for Lehmann says: "We know of no substance which could better act in the blood as food for the respiration, than the alkaline lactates."

Corroborative of these views is the fact that all those kinds of milk, such as goat's, ass's, etc., which contain the largest amount of sugar of milk, have at different times, and in various countries, obtained a reputation for curing consumption. Goat's whey, in which this article abounds, and from which it is largely manufactured, has been celebrated for its virtues in this line. Ancel speaks of it as an excellent remedy; and Pereira says, "Sugar of milk, in consumptive cases and chronic diseases of the digestive organs, is a most valuable aliment."

One of the best forms of taking sugar of milk is that of a gruel, which is quite palatable, and may be freely eaten by consumptive persons.

Creosote, Guaicol, etc. — Modern researches having proved that consumption, as well as many throat and other diseases are propagated by germs or *bacilli*, as explained on page 239, medical investigators have for a long time been seeking some agent that would destroy these germs without at the same time injuriously affecting the human system. A few years ago Dr. Robert Koch, a celebrated German scientist, who had long been investigating the consumption, cholera, and other microbes, thought he had discovered a lymph that would destroy or at least counteract the consumption bacillus; but unfortunately it proved a failure. Creosote, carbolic acid, guaicol and similar drugs kill the germ when outside the body, and for this reason most therapeutists of to-day use these remedies in as large a quantity, and for as long a time as the system will tolerate. At all events, whatever may be the outcome of the custom at present in vogue, creosote certainly arrests the rapid proliferation of germ-life in the lungs, improves the appetite and digestion, lowers the temperature, and apparently helps the patient. The only offset to the use of this class of remedies lies in the fact that one cannot thoroughly disinfect the blood sufficiently to kill these germs completely. Creosote made from beechwood, taken in three-drop doses with a wine-glass of milk, after food, three times a day, is the usual form of administration. This dose should gradually be increased till ten and even twenty drops are taken at a time. The carbonate of creosote is a more elegant and perhaps more effective form of the drug. This medicine may also be procured in the form of capsules and pills.

By Dr. Cyrus Edison's recently discovered product of carbolic acid, asepsin, it is claimed that seventy per cent of consumptive cases can be cured. It can only be administered as a hypodermic injection, however, at the hands of an experienced practitioner.

The Cough. — The best article I have ever used for this is the "Pulmonic Cherry Cordial." I was five years in compounding this article to suit me, and I believe it to be the very best cough preparation ever made. Dose, from one to two teaspoonfuls.

Pulmonic Cherry Cordial.— Wild-cherry bark, ground, 10 pounds ipecac root, 20 ounces; bloodroot, 24 ounces; squill root, bruised, 12 ounces; pulverized liquorice root, 5 ounces; cochineal, bruised, 2 ounces; anise seed, 32 ounces; fennel seed, 8 ounces; orange peel, 16 ounces; acetate of morphine, 12 drams; alcohol, 8 gallons; water, 8 gallons; pulverized white sugar, 40 pounds; sulphuric acid, 1 ounce.

Directions for making. — Grind all the articles to a coarse powder except those directed to be bruised or pulverized, and put them *all* to the alcohol *except* the wild-cherry bark, the water, the sugar, and the sulphuric acid. Let them stand one week, shaking or stirring thoroughly twice a day. Then, having kept the wild-cherry bark two days in a covered vessel, with water enough upon it to wet it through, place it in a percolator, and run eight gallons of water through it. Add this to the alcohol and other ingredients. Let the whole stand three days longer, stirring as before, twice a day. Draw off, and filter through paper. Now add the sugar, and lastly the sulphuric acid. The acid is intended mainly to improve the color, by acting chemically upon the cochineal. The color is a fine cherry red, tinged with orange.

I have given the directions for making sixteen gallons—this being the smallest quantity in which I make it. Any person can easily make the calculation for reducing the quantity. The assertion previously made that this is the "best cough preparation ever made," I see no cause to modify in the smallest degree. Were it kept in every apothecary shop, and were physicians to prescribe in pulmonary complaints, adding a little syrup of squills or wine of ipecac when a more expectorant effect is wanted, or a little morphine if greater narcotism is sought, it would save them much trouble in compounding cough syrups, and give them much more satisfactory results. I have compared its effect, again and again, with the best other preparations in use, and I pledge my word that it will succeed in twice as many cases as any other compound that may be chosen. Let physicians try it; and I will be responsible for ever hair's breadth in which they find this proportion of successful results abridged.

When a more quieting effect is needed, a little morphine may be added to this preparation; if a more expectorant influence is required, add a few drops of the tincture of *veratrum viride*. For the great

majority of cases, it will be found to be right without any addition. When this is not at hand, any of the preparations (108), (112), (109), (113), (110), etc., may be used. Another good preparation is Dr. King's consumption cure.

Night Sweats.— The very best preparation for these sweats is a compound of the oxide of zinc, one dram; extract of conium, half a dram; to be made into twenty pills, of which one or two are to be taken every night. The sponge bath also does much to check these sweats, and vinegar baths (369). Atropia, $\frac{1}{100}$ of a grain on retiring, and especially Agaricin, $\frac{1}{6}$ grain, will cause the sweats to stop absolutely.

Diarrhœa.— This is a most exhausting symptom in the latter stages of consumption. The only remedy which has much effect in controlling it is the *tris-nitrate of bismuth*. This should be given in doses of thirty grains immediately after, or at the time of each meal. These doses are much larger than used to be given; but they will do no harm. Given to this extent, I find the bismuth very effectual.

Iron.— This preparation, in some of its forms (316), (73), (159), (102), is almost always needed in consumption. If the scrofulous habit be strongly marked, give syrup of iodide of iron, in thirty-drop doses, three times a day. It should be taken in a glass of water. To the feeble administer Gude's pepto-mangan in teaspoonful doses three or four times daily. This is one of the simplest and most efficacious forms of iron we have.

External Irritants.— These are needed where there is much inflammation and soreness of the chest. Blisters should very seldom be used. Croton oil, from two to half a dozen drops, rubbed over the sore part, generally answers very well. Sometimes the mustard paste, applied to the extent of producing redness, two or three times a week, is sufficient. Nitric acid, reduced with water to a strength a little above the strongest vinegar, answers a good purpose for keeping up an irritation.

Atmospheric Inhalation.— It has been said by Laennec and others, that asthma has sometimes the effect of arresting tubercular consumption. Dr. Ramadge thought this was effected by an expansion of the vesicular structure of the lungs; and he reasoned that the same expansion, by mechanical means, would secure a similar end. To effect this, he made his patients take long breaths through a tube constructed for the purpose.

It is manifest that the philosophy of atmospheric inhalation was not understood by Dr. Ramadge, nor has it been by any of his followers in this country.

Rokitansky thinks the tubercular habit depends upon the excess of fibrin in the blood; and says that the reason of consumption being arrested by pregnancy is, that this condition offers a mechanical ob-

stacle to the transmission of blood through the lungs, — thus preventing its excessive oxidation, and keeping it in a venous state. This destroys the fibrinous condition, on which he thinks tuberculosis depends.

Now this is precisely what is done by atmospheric inhalation. The trachea divides, on its entrance into the lungs, into two branches, which again divide and subdivide until the tubes become smaller than can be seen, each terminating in a minute air-cell. Over this entire surface the air is intended to be brought into communication with the blood for the purpose of oxidating it. By forcible inhalation, the air-vesicles are inflated to the extent of their capacity, by which means the extreme branches of the pulmonary arteries are so flattened between these extended cells, as to be able to convey but a small amount of blood, and but little is oxidated. This furnishes a mechanical obstruction to the transmission of the blood, and secures the defibrination of which Rokitansky speaks.

This is my view of the philosophy of atmospheric inhalation. The benefit results, not from a larger amount of oxidation, as is generally supposed, but from a smaller. Asthma does the same thing by producing spasmodic contraction of the extreme bronchial tubes, and preventing air from entering the cells.

The same end is gained in part by certain kinds of employment, as glass-blowing, playing upon wind instruments, and the like. Writers of distinction mention cases of recovery from incipient consumption by a vigorous use of the lungs in singing. Dentists subject their lungs to a similar process of expansion in the use of the blow-pipe; the writer has known several instances in that profession, in which recoveries have taken place.

The Conclusion to which I come is, that atmospheric inhalation may be used with great advantage in some cases, but should never be resorted to except under the direction of a competent physician. In a congested state of the lungs, with hæmorrhagic tendencies, or with inflammation and soreness, it is well fitted to produce fatal bleeding and is of course dangerous.

External Use of Water.— As a relaxation from severe exertions, the ancients had frequent recourse to bathing. Those who contended in the race, throwing the javelin, and wrestling, at Rome, plunged into the Tiber while warm and panting with their efforts. That this promoted prowess and physical endurance, none can doubt.

Louis, the great French authority on pulmonary diseases, lays down several rules to be observed by consumptive patients, and particularly mentions cold bathing.

Few things give tone to the capillaries of the skin like cold water, systematically applied. It rallies the powers of the constitution, and improves assimilation. And by it another object is gained of scarcely less importance, — that of guarding the system against taking cold.

Those in the daily habit of applying cold water to the whole person seldom suffer from colds and catarrhs; they generally become hardened so as to endure the assaults of the elements.

Consumptive persons should generally use the *sponge* bath, with cold water, if it can be endured, otherwise the tepid bath, to be followed, in all cases with brisk rubbing, with a coarse towel. If a sense of chilliness and discomfort follows the bath, a large portion of the water must be squeezed from the sponge, so as to use but very little, and the washing must be speedy, and the rubbing more lively than usual, — beginning with tepid water, and gradually lowering the temperature till it can be borne cold. A large teaspoonful of saleratus to each quart of water should be used.

Diet.

THE diet, like all other parts of the treatment, must have reference to the *present condition* of the patient. If the disease take the bronchial form, and rapid breathing, and other conditions calculated to carry fat out of the system have not yet supervened; or if the patient have thirst and hectic, the diet must be spare and simple, — consisting chiefly of milk and farinaceous substances.

But in all cases where the disease is tubercular, or, being bronchial, has reached the stage of emaciation, the very earliest moment at which the fever can be subdued should be improved to build up the patient with a generous diet. I have seen cases where the stuffing sometimes resorted to for fattening turkeys for Thanksgiving would seem to be almost justifiable. A good rule is to give the most generous diet that can be taken without disturbing the stomach, or increasing the feverish symptoms. Animal food with a good quantity of salt should be freely taken. Fat meats, if well received by the stomach (and they generally are if taken *cold*), are particularly useful. The same is true of sweet butter and cream.

Out-Door Exercise.— Without exercise, as a general thing, the consumptive patient will die. Exercise involves muscular exertion, which is attended by the tension, compression, and greater compactness of the muscles used. Extend your walk a little every day. Stretch it out to the distant fields. Gather flowers from the top of the hills and from the bosom of the valleys, and bring them home as trophies of your victory.

If not able to begin with walking, ride as often as possible in a carriage. The jolting of a vehicle will jog the blood along much better than no exercise.

Horseback riding is still better. It combines, in some measure, the passive exercise of carriage riding, with the active exertion of walking on foot.

If the person who has only a small portion of the lung affected and whose general health and strength has not failed, the employment

of this advice for exercise cannot be too strongly put forth, as it means the continual inhalation of pure air, caused by the exercise, but I would not have a patient who has perhaps been greatly affected by the disease, think that the way is not open to him for improvement. He will of course not be able to exercise so strenuously, in fact, perhaps the majority of cases do not require as much exercise as has been advocated, provided however, they are placed *in a position where an abundance* of fresh air is also available and no symptoms appear which show that the strength is being called upon too vigorously, such as the patient being unable to sleep at night and digestive disturbances occur. But to the cases more advanced in the disease, it should be remembered that exercise will do more harm than good and the whole question will be an individual one as no general rules can be laid down for the patient. For as many hours and days as is possible, the patient should be exposed to the direct rays of the sun and protected from high winds. This may be attained on a high elevation, such as the roof of the house, with a southerly exposure.

If it is so the patient can travel, some high, dry climate about 4000 feet in elevation is the best place, and in selecting this resort the thing to be considered is the number of hours of the sunshine he or she will be able to be subjected to. We do not consider now the degrees of temperature, if the climate is free from moisture, as the patient can be properly clothed and be allowed to remain out of doors all day. The high altitude recommended is also beneficial because the patient is obliged to take deep breaths, thus being obliged to exercise his lungs.

Colorado and certain parts of Arizona and New Mexico in the United States, portions of Switzerland which have an elevation of four to five thousand feet above sea level, and San Moritz, abroad, are examples of suitable places.

Before leaving the subject, and for the encouragement of those affected, from the latest statistics at command, sixty per cent. of early cases have been discharged well from the Adirondacks Cottage Sanitorium.

Trudeau, the eminent authority of the United States, reports that one-third of all the cases under his observation during the past seventeen years are well and that two-thirds of the earlier cases are cured at the present time. Thirty years ago physicians thought that only two per cent. of the cases were curable.

Sea voyages are now not recommended, with the dampness naturally attending the trip, the lack of comfort on the steamer, the short length of time consumed by the trip, its compulsory confinement and the inability to eat nourishing food, if seasickness is present, all weigh against this treatment; in fact, from what has been said, if common sense is used a great improvement can be expected at, or within a reasonable distance of, the patient's home.

Numerous other modes of exercise may be resorted to with advantage. Dumb-bells, adapted in size to the strength of the patient, and used with caution, are highly serviceable. The battledoor, the football, bicycle riding, pitching quoits, and the athletic sports of the gymnasium, all have their appropriate place. The greater the variety the better, as by it all parts of the system are brought into play, and both the mind and the muscles get the change which they need.

It is hard to impress patients with the importance of this subject. Say what you will, they somehow or other get the idea that a moderate amount of exercise, taken when they feel like it, is all that is required. Fatal mistake! Whatever the physician may do, the patient has a great deal to do for himself. He must strive to develop his physical powers to the utmost. He must train himself as runners and fighters do when preparing for their surprising feats; for he is running against the swiftest disease (or the surest winner) of our climate, and fighting with the elements.

If he regards life as not worth this exertion, of course he will not make it; but I beg him to consider that without it recovery will be uncertain, and in many cases, impossible. Do as I have directed, and if your medical attendant is skilful, the current of health will, in many cases, begin to flow back to you. Life will renew to you its policy of insurance, and multiply your days.

Drugs. — Tonics and bitters to help the appetite, iron, strychnine, quinine in very small doses as a tonic; of the heart supporters digitalis may be given when indicated and used carefully under the advice of a physician, cough sedatives of which, perhaps, the most useful is one which may now be obtained at all drug stores, is the Elixir of Terpin hydrate with heroin in the dose of a teaspoonful four or five times a day.

Travelling:— Consumptive patients have generally been sent to a southern climate. But where the case involves dyspepsia and affections of the liver, low latitudes are generally unfriendly. Liver complaints are the bane of a southern climate, and a sallow complexion is the inheritance of a southerner.

Tubercular persons, chilled by our northern climate, are sometimes temporarily relieved by the warmer atmosphere of the south. But the relief is only temporary; for, having lost the power, as they imagine, to bear the frowns of our northern sky, they are dying, and will die anywhere unless they recover this power. And the way to retrieve a lost advantage over an enemy, is, not to retreat to a point where recovery will be harder, but to meet him at once. If the constitution cannot bear up against an enemy under the bracing of a northern atmosphere, it will be still harder to do so under the wilting of a southern.

After all, the objects aimed at should be *change* and *travelling*. The exercise involved, the constant exertion required in getting from

place to place, the agreeable sensations produced by the motion of cars and steamboats, the ever varying change of sights and sounds, and the constantly increasing stock of one's ideas of men and things, — these are what rally the constitution, and open anew the springs of life.

Especially should all journeys for health be taken, if possible, with an object in view. Let the consumptive start with the view of seeing the cave of Kentucky, the prairies of the West, the great lakes of the North, the falls of Niagara, the fortress of Quebec, the Saguenay river, the doctor, who he has reason to think will cure him, — *anything* which he is willing to make exertion to see, and that he is sure his eyes will rejoice in beholding.

I have thus spoken of consumption more at large than of other complaints, because it is the great disease of the world, and is increasing with the advancement of civilization.

Acute Bronchitis.

THIS is an acute inflammation of the mucous membrane lining the air-tubes in the lungs. It is generally quite a serious disease.

Physical Signs. — The sound upon percussion is generally good. If there be any dullness, it is commonly in the lower and back part of the chest. This occurs only in "Capillary Bronchitis."

The breathing murmurs are sometimes more, sometimes less intense than natural. Occasionally they are almost extinct.

In the early stage, sibilous and loud rattles.

In the more advanced stage, mucous rattle.

Now and then sub-crepitant rattle accompanies the inward-drawn breath.

General Symptoms. — The disease begins with chills followed by fever; tightness across the chest, difficulty of breathing, hoarseness, loss of strength, costive bowels, and a quick and hard pulse. Water runs from the eyes and nostrils, and there is a dry, harsh, croupy cough.

After a few days, mucus begins to be raised. This expectoration gradually becomes more copious, and is opaque, yellowish, or greenish, and occasionally streaked with blood. This mucus is very ropy and adheres to the vessel.

There is more or less pain in the chest; pain across the forehead, which is increased by coughing; and a pale and anxious countenance.

In severe cases, the tightness across the chest is extreme, with a sense of suffocation, causing the patient to call for the opening of the windows. There is great difficulty of breathing; a paleness and lividity of the cheeks and lips; a loud wheezing and rattling in the throat, followed by cold sweat, insensibility and death.

In children the disease comes on like a common cold, attended by

a sore throat, a great desire to drink, but a disinclination to take food. But two or three swallows of drink can be taken at a time for want of breath. The phlegm is frequently vomited up spontaneously.

Observations. — The loud and sibilous rattles are produced by similar causes, namely, the passage of air along tubes whose interior is dry and rough from inflammation, or whose calibre is contracted or altered in form by the swelling of the membrane, effusion upon its inner surface of a tough, mucous substance, or a pressure upon its external surface of tubercles, swollen glands, aneurismal tumors, etc. The two sounds differ mainly in the key upon which they are pitched, — the sonorous, or low-keyed, coming from the larger tubes; the sibilous, or high-keyed, from the smaller, — just as the low notes of an organ come from the large pipes, and the high notes from the small ones.

Causes. — It is generally brought on by a sudden cold, by changes of the weather, and by inhaling irritating substances. It is a secondary result, too, of scarlet fever, measles, small-pox, whooping cough, and the remittent fever of infants.

Treatment. — In mild cases, give warm balm or flax-seed tea, hot lemonade, or other similar drinks, — at the same time soaking the feet in hot water, and, on retiring to bed, apply bottles of hot water to the feet and sides, to produce sweating. If the bowels be costive, some gentle physic, as rhubarb and magnesia, or salts and senna, may be taken.

Chloride of ammonia in teaspoonful doses diluted in water and citrate of potassium in 10 to 20 grain doses, or better still, a mixture of

Chloride of ammonia,	3 drachms or teaspoonfuls.
Citrate of potassium,	4 “ “
Compound licorice mixture,	3 ounces.

Shake the bottle.

Take of the above, one teaspoonful diluted with water every three hours.

In the case of infants, an emetic of wine of ipecac, or compound tincture of lobelia, should be given, and followed with slippery elm and flax-seed tea. The compound tincture of lobelia, with tincture of veratrum viride, may be continued for a time as an expectorant.

In more severe cases, both of adults and children, an active emetic is required, — perhaps the compound powder of lobelia is as good as any. This must be followed with tincture of veratrum viride, in full doses, so as to reduce the pulse at once, and keep it down to the natural standard. This is one of the very best articles in this complaint, and will generally very much lessen its violence and duration.

If there is much difficulty of breathing, the air of the room must be kept moist, as recommended in croup.

The room should also be kept warm, — decidedly warmer than in the case of other fevers.

A gentle perspiration should be kept up by small doses of compound tincture of Virginia snake-root, and by frequently bathing the surface, or else by tincture of veratrum.

Mustard should be applied to the chest, and to the soles of the feet.

The cough may be managed by preparations (104), (106), (110), freely given.

The diet should be confined to barley-water, toast-water, apple-water, rice-water, and a solution of gum-arabic.

Chronic Bronchitis.

THIS is an inflammation of the mucous membrane of the air-tubes, which continues a great length of time, without any sudden or remarkable changes.

Physical Signs. — The percussion-sounds are similar to those of acute bronchitis. When a bronchial tube is dilated, we sometimes have dullness around the dilated part.

The breathing murmur is always accompanied by a mucous, sonorous, or sibilant rattle, — sometimes by a subcrepitant.

When dilatation of the tubes exists, the intensity and duration of the sound of the ingoing breath is *decreased*, — of the outgoing *increased*.

In this state of the tubes, we also have cavernous breathing, bronchophony, sometimes pectoriloquy, and bronchial or cavernous cough.

General Symptoms. — A cough is generally present, which is increased in wet weather, and by every slight cold. This comes on in paroxysms; is generally worse in the morning; and is relieved by raising freely. The matter raised is generally yellowish, but sometimes whitish and sticky; and in the latter stages is thick, and sometimes very much like that of consumption. Indeed, the disease often ends in bronchial consumption.

Remarks. — The breathing is bronchial or cavernous when the dilated portion of the tube is empty; if it contain fluid, the mucous rattle will be heard.

Dullness on percussion will exist if a dilated tube press upon the surrounding portion of lung so as to condense or make it solid.

Dilatation of the tubes occurs only in chronic bronchitis of long standing. Its physical signs are much like those of a cavity in advanced consumption. The examiner may learn to distinguish them by considering that in consumption, *dullness precedes the cavity*, while in bronchial dilatations, the *cavity precedes dullness*.

The dilatation or swelling out at some point of a bronchial tube is caused by obstructions to the passage of air through it, — just as

an India-rubber tube, partially closed up at a given point, will bulge out just in front of the obstructed place, when air is forcibly blown through it, and just as the left ventricle of the heart enlarges when the blood is obstructed in its passage through the aortic valve.

Causes. — It often occurs as the result of acute bronchitis, and also of measles, whooping-cough, etc. But taking cold, and damp and changeable weather, are more frequently its causes. It most often follows chronic inflammations of the throat, which, being neglected, gradually creep down the windpipe into the tubes, and become very obstinate in their character.

Treatment. — Medicinal inhalation is one of the best remedies for this complaint. The inhaling powder has, in many cases, great efficiency. The dose is about what can lie on a ten-cent piece. It should be used once a day, in an instrument represented in the cut.

This instrument I had constructed for my use. It consists mainly of a glass tube and a receiver, — the latter being something like a tube-vial, pierced with fine holes around the lower end. The powder is poured into the receiver, which is placed in the larger tube,

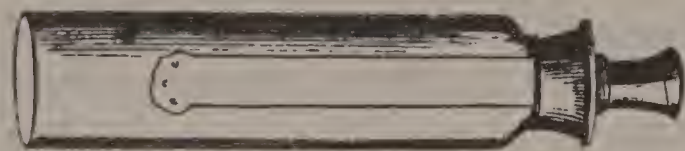


FIG. 94.

and twirled between the thumb and finger while inhaling.

When the powder cannot be easily got down into the tubes in the lungs, — as often happens, — the inhalation of medicated vapor will do better. If the expectoration be difficult, the expectorant inhalant, described under “consumption,” should be used; if the expectoration be too profuse and free, the astringent inhalant must be taken.

The cough preparations recommended for consumption, also (113), (112), will be the proper ones in this complaint.

The daily alkaline bath, and brisk friction, are particularly serviceable.

Out-door exercise is almost as necessary in this disease as in consumption.

Enlargement of the Air-Cells. — *Emphysema.*

THIS disease consists in enlargement of the air-cells, the obliteration of their vessels, and the wasting of their walls.

Physical Signs. — Thumping upon the chest gives a clearer and louder sound than natural, — one which is tympanitic, or drum-head like.

The murmur of the ingoing breath is *diminished* both in duration and intensity, — of the outgoing breath, it is *increased*.

Dry, crepitant rattle attends the ingoing breath only; occasionally, sibilous rattle.

General Symptoms. — Habitual shortness of breath, and very great difficulty of breathing, occurring in paroxysms, which cause the patient to rush to the open window for air.

There is generally a cough, and the matter raised is frothy, liquid, and mucous, or watery.

The face has a peculiar dusky color, and the countenance an anxious, melancholy expression. The nostrils are thick, and the lower lip full. The muscles of the neck are large, and the gait of the patient is stooping. The strength is wasted in proportion to the difficulty of breathing.

Emphysema tends to produce disease of the heart, Bright's disease, and venous congestions in the head.

Observations. — The tympanitic sound is caused by the increased amount of air in the cells.

The air-cells have lost their elasticity, the air, in a great degree, *remains in them*, — not passing in and out, — hence the absence of the vesicular murmur.

The crepitant rattle attends the ingoing breath only, and is supposed to arise from the expansion of the lungs which are in a drier state than natural. It has been compared to the sound produced by blowing into a dried bladder.

Treatment. — To whatever extent the air-cells are destroyed, to that extent, of course, the disease is incurable. It may, however, be palliated and relieved to a great extent.

Generally, bronchitis exists in connection with emphysema; and when this is found to be the case, the remedies for that disease must be employed. (370) often is curative.

The inhalation of tincture of stramonium, in one or two teaspoonful doses, the same as the alterative inhalant is used, will be useful.

To be taken internally, an excellent preparation may be made by uniting one dram of ethereal tincture of lobelia with two drams of tincture of ipecac, and two ounces of ammoniac mixture. The dose is one or two tablespoonfuls. Half-grain to grain doses of extract of cannabis indica are excellent to relieve the difficulty of breathing.

The diet must be very carefully regulated, as overindulgence at the table aggravates the symptoms.

Change of air is often highly beneficial; but it is impossible to predict its effect beforehand in each individual case.

Swelling of the Lungs. — *Hypertrophy of the Lungs.*

THIS can hardly be regarded as a disease. It generally takes place in but one lung, and is the result of the inaction of the other. Thus, when one lung is diseased, the other has to do the work of both; and being overworked, it enlarges, as the heart or an arm does when very much exercised.

The only treatment required is to eat sparingly, and exercise with great moderation, so as not to increase the rapidity of the breathing.

Pulmonary Apoplexy.

THIS is generally the result of a disease of the heart, particularly of the *mitral* valve.

Physical Signs. — Percussion yields a clear sound, except where the engorgement of blood is large, and near the surface, — in which case, it is dull.

The sound of breathing is feeble or absent over a limited space.

Bronchial breathing is heard in some places, and bronchophony in part, in the same regions.

Mucous rattle is also heard.

Observations. — In this disease the small air-tubes and air-cells are the seat of bleeding; and the blood becoming coagulated here, closes these vessels against the entrance of air. This explains the feebleness or absence of the breathing murmur.

The fluidity of blood in the immediate vicinity gives rise to the mucous rattle.

General Symptoms. — These are, difficulty of breathing, tightness, and dull pain in the chest. The mucus raised is tinged or streaked with blood. The blood raised is darkish, and dirty-looking. This last symptom, the dirty look of the blood, is peculiar in this disease.

Treatment. — The most important remedy is dry-cupping upon the chest. This will often arrest the disease at once. Counter-irritation by croton-oil is also useful. A free movement of the bowels by a preparation containing croton-oil, or elaterium (31), (33), has an excellent effect.

Air in the Chest. — *Pneumothorax*.

THIS disease consists in the presence of air in the cavity of the pleura. Generally, there is also water in the pleural sac at the same time; the water, being the heavier fluid, occupying the lower part of the cavity, and the air the upper part.

Physical Signs. — Tympanitic or drum-like sound over the upper part of the side. Dull sound over the lower part. Breathing murmur diminished or suppressed. Amphoric breathing. Metallic tinkling.

General Symptoms. — Great oppression of the chest, and difficulty of breathing; generally attended by palpitation of the heart, and frequently by severe pain under the breast-bone, on the affected side. The patient generally has to remain in the sitting posture, and cannot lie an instant on the sound side.

If, on percussion, one side of the chest sounds louder than the other and the breathing murmur is heard distinctly on the side which gives only a moderate sound, and is not heard at all on the loud-sounding side, we may be sure it is a case of air in the chest.

Observations.—The metallic tinkling is like the sound produced by dropping a pin's head into a metallic dish, or like the distant tinkling of a sheep-bell, or the gentle pulling of the string of a violin.

It is supposed that when the fluid in the cavity of the pleura happens to be higher than the orifice, the air, when it enters at each in-drawn breath, forces its way up through the fluid, in the shape of bubbles, and, bursting at the surface, gives the tinkling sound. This sound is sometimes produced, too, by the falling of drops of liquid from the upper part of the cavity, upon the surface of the fluid.

The amphoric breathing is like the sound produced by blowing obliquely into an empty cask. One writer says he heard the same sound when out shooting on a rough day, produced by the wind blowing sideways into the gun-barrel.

Treatment.—I would recommend the use, two or three times a day, of the antiseptic inhalant, mentioned under the head of consumption.

To this should be added dry-cupping over the whole chest, which generally gives great relief. Blisters may also be used.

Sweating must be encouraged in the manner recommended under acute bronchitis.

For the difficulty of breathing, give half-grain doses of cannabis indica, or five-drop doses of tincture of aconite, or one-sixth of a grain doses of svapnia. Extract of belladonna, or of stramonium, is also worthy of trial.

Water in the Chest.—*Hydrothorax*.

THIS disease consists in a collection of water in the cavity of the pleura.

Physical Signs.—There is a dull sound over the effusion.

The breathing murmur is diminished, and gradually disappears altogether over the space occupied by the effusion.

Bronchial breathing is heard in the same part.

When the amount of fluid is small, egophony is heard in the middle regions of the chest.

Bronchophony is heard when the effusion is larger.

General Symptoms.—Either upon lying down, or using active bodily exercise, the patient finds his difficulty of breathing *increased*. When in bed, he lies with his head and shoulders raised, which, by causing the fluid to settle at the bottom of the cavity, prevents, in a measure, its pressure upon the lungs, and gives him a little rest.

His sleep is interrupted by sudden starts with alarm and terror. The pulse is hard, the thirst great, the urine scanty and high-colored, and has a sediment. After a time the feet swell, the face is pallid and livid, and the countenance expresses anxiety and alarm. There is a short, dry cough.

When the quantity of fluid in the chest becomes large, the patient cannot lie down at all, and only gets short and disturbed naps in the sitting posture.

Of all the symptoms, the starting in sleep is the most certain sign of the disease.

Causes.—In some rare cases, this may occur as a primary disease, — that is, as a disease not dependent upon any other as its cause. The greater number of cases, however, are secondary. They arise from organic disease of the heart, or liver, or stomach. Inflammation of the pleura is a very frequent cause.

A plethoric, or full state of the system, predisposes to this complaint, — particularly in those persons who indulge freely at the table.

It may arise, too, from the striking in of skin eruptions; from the free use of liquors; and from frequent excessive bleedings or purgings.

Treatment.—Dry-cupping is a valuable remedy, and should always be practised.

The chest should be painted with the tincture of iodine, and a good degree of substantial *soreness* be kept up.

The internal remedies are purges (31), (14), (30), and diuretics (123), (129), (130), (131) when the patient is not very weak.

The iodide of potassium, in doses of five or six grains, once in three or four hours, is an excellent remedy. The following is a good form of taking it: iodide of potassium, one ounce; fluid extract of pipsissewa, two ounces; water, half a pint. Dose, one teaspoonful.

The skin should be bathed and rubbed daily, three or four times, with much friction. Tapping the chest should be done when the fluid persists any length of time, otherwise a simple hydrothorax may become a doubly serious empyema or pus in the chest.

Pleurisy.—*Pleuritis.*

PLEURISY, or pleurisy fever, as it is sometimes called, is an inflammation of the pleura, or the membrane which lines the chest, and, at the same time, is folded back so as to cover the outer surface of the lungs.

The pleura, as is elsewhere explained, is a short sac or bag, whose inner sides are kept moist, so that they may slide easily upon each other as they are moved by the alternate contractions and expansions of the lungs in the act of breathing, and whose outer sides are made to grow, — one to the inside of the chest, and the other to the outside of the lungs.

Pleurisy and lung-fever, then, must be kindred diseases, and exist, more or less, together. In truth there is almost always some affection of the pleura in lung-fever, and some affection of the lungs in pleurisy. The pain in lung-fever is owing to some inflammation of the pleura; and the appearance of the rusty-colored phlegm in pleurisy indicates that the lungs have been reached by the inflammation of the membrane which covers them.

Physical Signs.—Flatness on percussion, at the lower part of the chest, which ascends as the effusion of water increases.

If the effused fluid is not great, there is puerile breathing at the top of the lung.

Friction sound is heard occasionally in first stage of disease.

Egophony is heard when the amount of fluid in the pleura is small.

As the amount of water increases, bronchophony appears.

General Symptoms. — This disease is most frequently introduced by *shiverings*, which are soon succeeded by high fever, with a peculiarly hard, resisting pulse; sharp, *stabbing* pain in the side,—generally just below the nipple, but sometimes extending to the shoulder, arm-pit, and back; hurried and interrupted breathing; and a short, dry cough.

The pain is greatly aggravated by motion, coughing, or an attempt to take a long breath. It holds the patient under constant and powerful restraint. We find him lying upon his back, or his well side; his countenance full of anxiety,—fearing to move, cough, or even breathe needlessly; and often crying out from the keen torture these necessary acts inflict in spite of all his caution.

At a more advanced stage, when the tenderness has somewhat abated, he will prefer to lie on the diseased side, as this leaves the healthy lung more at liberty.

Observations. — The first effect of the inflammation of the pleura is to dry up the moisture with which its inner surfaces are lubricated, or made smooth and slippery. As a consequence, these surfaces become rough, and rub harshly upon each other, and produce a sound, in the early stages of pleurisy, like that of rubbing two pieces of wet leather together. It may be imitated by rubbing the finger back and forth upon a table. It is sometimes a creaking noise, like that of new shoes.

As the disease advances an important change takes place in the state of things. Instead of an unnatural dryness, a watery fluid is poured out copiously from the inflamed surfaces of the pleural sac. This is called *the period of effusion*. This generally, though not always, relieves the pain. But, by compressing the lung, causes dangerous difficulty of breathing.

The air-cells are compressed by the effused fluid, and are not penetrated by air. Hence the absence of the breathing murmur.

The pouring out of water between the layers of the pleura, compresses the lung, and removes it from the walls of the chest. Hence the dullness or deadness of sound upon percussion.

When listening with the stethoscope, the voice of the patient sounds feeble and interrupted, like the bleating of a goat, and is hence termed, *egophony*, or *goat-voice*.

This peculiar voice is heard only when the effusion of water has been moderate in quantity, and only a thin layer of liquid lies between the ribs and lung. It is caused by the voice passing over this thin layer, which is thereby thrown into *vibrations*, or wavy, quivering motions. When thus agitated, the fluid reacts upon the voice, making it sharp and tremulous.

When the effusion has become large, these effects cease; but another sign then shows itself, and distinguishes pleurisy from the healthy state, and likewise from the solid, hepatized state of the lung in lung-fever. It may be discovered thus:

If the hand be laid flat upon the chest of a healthy person, while he is speaking, a *vibration* or *thrill* will be left. If, in like manner, the hand be laid upon the chest of a person having lung-fever, with hepatized lung, this thrill will be found still more perceptible. But when the hand is placed over the place of watery effusion on the chest of a person having pleurisy, there will be discovered, when the person speaks, *no thrill whatever*. *The absence of this thrill, then, is one of the very best signs of pleurisy with effusion.*

Persons recover from pleurisy sometimes very rapidly, before effusion has taken place. It is then said they have had an attack of *dry pleurisy*. When liquid has been poured out, even in considerable quantity, it is sometimes reabsorbed, and the patient recovers perfectly. In other instances, it compresses the lungs, interferes seriously with breathing, reduces his strength, and he sinks rapidly.

Treatment. — Pleurisy has been divided for description and treatment into three stages, following the natural events of the inflammation. The first stage comprises the period from the first onset to the time when effusion commences. The second stage, or stage of effusion, extends to the time when the liquid begins to diminish; and the third stage consists of the period occupied by the absorption of the liquid.

Should the quantity remain stationary or diminish very slowly after the lapse of two or three weeks, the disease becomes chronic.

The indication for treatment during the first stage is to arrest the progress of the disease, to diminish its intensity, to limit the amount of morbid products, and to relieve suffering.

If the patient is robust, has a hard, frequent pulse, accompanied with extreme pain and fever, blood-letting is indicated. The abstraction of ten to fifteen ounces of blood will give great relief and diminish the intensity of the attack; but if the patient is not seen early, and is of a feeble constitution, some other measures should be

substituted for it. The mass of blood may be lessened by saline cathartics, such as the sulphate of magnesia, or the bitartrate of potash in combination with jalap.

The effect of a full dose of Epsom salts is equal to the abstraction of a pint of blood from the system. Depletion is obtained this way without the impoverishment of the blood.

The frequency and force of the heart's action may also be affected by the nauseant sedatives, such as tartarized antimony and ipecacuanha, and by the direct sedatives, such as the tincture of aconite and of veratrum viride; therefore, if blood-letting is contra-indicated, the first thing to be done is to give the sulphate of magnesia, and follow it with some diaphoretic like (130), to alleviate the painful stitch in the side and to tranquillize the system.

It is well to administer salicylate of soda in 10-grain doses every three hours till a little ringing is heard in the ears, then once in four hours. This drug increases the action of the skin and kidneys and overcomes the rheumatic element present in most if not all pleurisies. The diet should be dry, all liquids being excluded, that the abstraction of water from the chest may be favored.

Nothing gives so much and such immediate relief to pain as a subcutaneous injection of morphine. Aconite also is a valuable sedative in this stage. It may be given in half or whole-drop doses every fifteen minutes for two hours; then afterwards a drop, to be repeated hourly till some impression is made upon the heart's action. Smaller doses are to be given if the pulse becomes feeble.

In the second stage, if the acute symptoms have yielded to treatment, as they usually do, the object of treatment is to promote the absorption of the fluid. This is done by the judicious use of saline cathartics and by diuretics, for the bowels and the kidneys are the natural pumps of the system.

The application of counter-irritants is also of use for this purpose, such as the tincture of iodine, and small blisters, which are to be allowed to remain on till vesication, and then the blister is to be dried up and a new one applied. If at any time during this stage the effusion is rapid and excessive, so as to endanger life, it is to be drawn off by puncturing the chest between the fifth and sixth ribs on the side with a small trocar, and the fluid is to be drawn off by suction.

Convalescence commences when the liquid begins to be absorbed; and active medication should then cease, and that course should be pursued which will lead to the restoration of the general health. This is done by tonics, a nutritious diet, and other hygienic means. If the effusion ceases to be absorbed or the process takes place very slowly, then that state of things exists which is called chronic pleurisy. Then the main objects of treatment are to effect the removal of the fluid, and to develop and sustain the powers of the system. Under these circumstances, it is better to discontinue remedies which act upon the bowels and kidneys, at least for a time, and try general

treatment. This consists of tonics, stimulants, and general exercise in the open air, and with this the surgical removal of the fluids from the cavity of the chest.

The operation is now so much improved, and is so safe and simple and attended with so little pain, that it has become an every-day practice, and an operation which was only resorted to as an extreme measure to save life, is now admissible whenever the pleural cavity remains filled with liquid, after only a brief trial of the remedies assigned to promote absorption.

Lung Fever. — *Pneumonia*.

THIS disease, by common usage, has been called a fever; but by physicians it is reckoned as one of the *inflammations*. It is inflammation of the *lungs* or *lights*; and whatever fever there may be results entirely from this local inflammation.

For the purpose of more clearly describing this complaint, it is found convenient to divide it into three stages, or degrees of progress.

First Stage. — This is called the *stage of engorgement*. The lungs during this stage are *engorged* or *crowded* with blood. If we could inspect them, we should find the inflamed portion *redder*, *thicker*, and *heavier* than usual. We should find them weaker, that is, more easily torn than in the natural state; with less air in them, and consequently crackling less upon pressure, — yet not entirely destitute of air and crackling, and not so heavy as to sink in water. Rapping upon the chest at this period gives out a flatter, duller, or less hollow sound than usual. On applying the stethoscope, we hear less of the natural *rustling* sound of health; and, either mingling with, or overcoming it, we hear a minute *crackling* sound, as the air passes in and out in breathing.

This crackling has been compared to that produced by fine salt thrown upon red-hot coals; or by that of rubbing a lock of fine hair between the thumb and finger near the ear. It is caused by small bubbles of air being forced along the moist and sticky sides of the small tubes and air-cells. It is heard only while the breath is being drawn in.

Second Stage. — If the inflammation advances to the second stage, the swelling of the diseased lung increases so as to force out the air entirely, and it becomes *solid*, and wholly useless for the purpose of breathing. In solidity and general appearance, it resembles a piece of liver. Hence it is said to be *hepatized*, or *liverized*; and this is called the stage of *hepatization*.

As the lung grows more solid, its vitality and strength diminish; it is not near as strong as a piece of healthy liver, though it looks like it; it is soft and easily broken; indeed it seems to be in a state of commencing decay or rottenness. Hence some writers, in order to be more precisely correct, call this the stage of *red softening*.

With increased solidity, there is of course increased dullness on percussion. When the stethoscope is applied to the chest, we hear no sound of air passing into and out of the diseased lung; no natural rustling, or minute crackling; but in their stead, we have a kind of whistling, produced by the air passing back and forth in the wind-pipe and its branches, but finding no entrance into the solidified air-cells. The breathing sometimes sounds like a sort of puff, — owing to the column of air rebounding when refused admission to the closed-up cells.

The general symptoms now increase in severity. There is greater difficulty of breathing; the phlegm is more gluey; perhaps some delirium shows itself; and the patient grows weaker.

Third Stage. — At this period, the lung changes from *red hepatization* or *red softening* to *gray hepatization* or *gray softening*, and matter is now found diffused through its whole substance. The percussion sounds are much the same as in the second stage. On listening, we hear more of the rattling sound produced by disturbed phlegm. The matter raised is thinner, — more like liquid; and looks like prune-juice. The symptoms generally indicate that the patient is sinking. Patients may recover from the first and second stages, but rarely from the third.

Symptoms.—For several days before the disease is pronounced enough to make the patient appear very sick there is a general discomfort of the principal air passages, especially the nose and throat, in fact, a great many cases of pneumonia follow a so-called cold, which has been present for two or three weeks. In others, and in this disease perhaps the first symptom to be noticed is a chill, mild or severe, which has no influence upon the severity of the disease that is to follow. Following this chill comes the fever and usually the so-called pluritic pain over some portion of either lung, many times it appears to be over the nipple of the side affected, or it may appear in the lower chest or even in the back. Shortness of breath caused by the pain when a deep inhalation is attempted then appears, and though the pain in the chest may diminish, which is frequently the case, fever and shortness of breath continues; the appetite leaves, thirst appears to a greater or less extent, the bowels are usually sluggish, the flush shows on the cheeks and a distressed, hacking cough, suppressed if causing too much pain, and the raising of a scanty, dark reddish phlegm, which, when expectorated into a vessel has a tendency to stick to the sides, and does not flow freely like saliva. The disease rapidly assumes a severe condition, and in favorable cases remains about the same for five to eight days. During these days mentioned, the so-called crisis occurs, which is the sudden dropping of the temperature from 102 to 104 at which height it has been, down to the normal, which is $98\frac{1}{2}$ degrees. The respiration during these times is rapid and short. The sickness of the patient progressively increases the

pulse which is around 100 to 130. The mind is many times clouded, especially in children or those addicted to liquor.

Treatment.—It is well to understand that in this most serious disease the best care and maintenance of strength is absolutely required. There are a certain number of cases that will die in spite of the best treatment that can be obtained, another number will get well if not given the wrong treatment or neglected, but a large middle class between these two extremes will need careful treatment to carry them through to recovery. There can be no absolute routine treatment in pneumonia, as the condition of the patient will demand how much stimulation is needed and what degree of lung tissue is affected. In the early stages of pneumonia, some depressant to the increased circulation which will be seen by the rapid beat of the pulse, is needed a tincture of aconite or of veratum viride in one drop doses repeated every half hour until five or eight doses have been given. Although the temperature will be increased at this time, a hot mustard foot bath will help the aconite in its action and relieve temporarily the congestion of the lung. If violent pain in the chest, due to pleurisy is present, small doses of Dover's powder which may be obtained at drug stores and which consists of ipecac which is a sweat producer, and morphine which is a pain quieter, and the combination of these two, act most happily upon the system in this condition. Thus 5 to 10 grains of Dover's powders repeated if the pain continues, every three or four hours will often give great relief. This remedy must be used only during the first two or three days, as later on they will only tend to further depress the heart, which may by this time be showing the effect of the disease. It will now be necessary to see that the eliminating organs of the body, such as the bowels, the kidneys and the lungs are kept in a state of active work, an expectorant such as the prescription recommended under bronchitis consisting of chloride of ammonia, citrate of potash and licorice mixture will enable the patient to raise the phlegm and the citrate of potash will exert a favorable action of the kidneys. It then remains for us to keep the heart in as good condition as possible, care being taken not to over-stimulate as the chances are good for all the stimulants we possess to be needed before the patient is through the crisis. This is done by the use of strychnia, the most favorable and digitalis and alcohol in the form of whiskey and brandy in the order named. Strychnia may be given on the second and third days, or if not needed then, when the acceleration of the pulse to above 110 renders it necessary. The dosage may be at first 1-60 of a grain four times a day; when this dose ceases to hold the pulse at 110 the dose may be increased to 1-40 of a grain every four hours, and even later again increased to 1-30 or even 1-20 of a grain, but of course, these later doses *only on the advice of the physician who has*

taken charge of the case. Whiskey or brandy in tablespoon doses for adult every four to six hours will be of temporary service in tiding the patient over attacks of heart failure. Digitalis in the form of tincture given in doses of 10 drops three, four or five times during twenty-four hours may be needed after the third, fourth or fifth days. The fever will often rise to 103 or 104 degrees and remain at this point, but as the disease will turn sometime between the fifth and eighth or ninth days we do not have to use strenuous measures to reduce the fever unless the patient is very nervous or delirious. In this latter case tepid or cool water sponging will often relieve the nervous troubles by reducing the fever and enabling the patient to sleep without artificial aid. A jacket made of sheet-wadding and kept about the chest is a good precaution if constant care of a nurse is not given. This will often tend to reduce congestion and surely keeps the chest from exposure to changes in temperature, should the patient throw off the clothes. In emergencies which may occur at any time during the course of the disease and to be watched for especially at the crisis or turn of the disease, the aromatic spirits of ammonia in half teaspoonful doses diluted with water may be given every hour for the stimulating effect. Oxygen is often of value though many times used without effect. It will quiet labored breathing to some extent and supply the blood with a necessary article which the consolidation in the lung is withholding from it. As soon as possible withdraw what unnecessary stimulation is being given and through the convalescence give the expectorant mixture and nourish well with eggs, broth, milk and light but concentrated articles of diet.

Typhoid Lung Fever. — *Typhoid Pneumonia.*

THIS is an inflammation of the lungs, differing from the preceding only in the character of the fever attending it, which is of a low, typhoid character. The disease, like typhoid fever, is characterized by great debility and prostration.

Symptoms. — These are a combination of the symptoms of pneumonia and of typhoid fever. The disease begins with great weariness, lassitude, dizziness, pain in the head, back, and limbs. Soon there is much difficulty of breathing, tightness across the chest, with a dry, short, hacking cough.

As the disease advances, the active symptoms pass away; there is a dull pain across the chest; drowsiness is very apt to come on, with the various symptoms of sinking peculiar to typhoid fever. The skin is harsh and dry, the temperature uneven, the tip and edge of the tongue red, and the middle covered with a yellow or brown fur. The bowels are tender, swollen, and drum-head like; while there is often a diarrhœa, — the discharges having a dirty-yellow color.

Treatment. — This should be like the treatment of pneumonia and typhoid fever united.

Great care must be taken not to use *reducing* remedies. While active purging must not be used, yet, if there are symptoms of an inactive state of the bowels, podophyllin and leptandrin (34), (39), may be employed with advantage.

When there are symptoms of great depression, use tonics (46), (48), (50), (53), (60), (64), (67), (73), taking care to keep the cough loose by flaxseed, slippery elm, and marshmallow tea, and by some external irritant.

Broncho-Pneumonia.

THIS is an infectious inflammation, characterized by an exudation from the blood-vessels, the formation of new connective tissue, and the growth of bacteria. The disease involves the walls of the bronchi and the air-spaces surrounding the inflamed tubes. It is frequently called capillary bronchitis and catarrhal pneumonia. It is the ordinary pneumonia of children, and is frequently seen in young people.

It comes on primarily, but is often secondary to measles, whooping-cough, etc.

Symptoms. — In the very young, the only symptoms are fever, prostration, and rapid breathing. There is no cough, no physical signs, but the disease is, almost always, fatal within a few days' time.

There is a great difference in the invasion of the disease in different cases, the severer cases being ushered in by one or more convulsions, by rapid rise of temperature, vomiting, difficulty in breathing, and delirium; the milder cases beginning with lower temperature, moderate prostration and shortness of breath.

The height of the temperature is, as a rule, in proportion to the severity of the disease. Temperatures of 105° and over are usually fatal. The pulse reaches 150 to 170 in adults, and even higher in children, — so high, in fact, that it cannot be taken. The respiration varies from 40 to 80. Sleeplessness, restlessness, and even delirium are frequently present. The face is flushed, the tongue coated, and oftentimes diarrhoea and vomiting occur. Cough is usually present, and in the young the sputum is swallowed. The urine is frequently albuminous and contains casts.

Between the second and fifth days the signs of consolidation and pleurisy appear, i. e., dullness on percussion, bronchial breathing and bronchophony with crepitant rattles.

The duration of the disease in children varies: of the fatal cases the majority die within the first fortnight. The cases which recover vary from one to three weeks, though many persist for six and eight weeks. The softening and absorption which occurs in all pneumonias that recover occupy a much longer period in broncho-pneumonia than in lobar pneumonia.

Many cases of broncho-pneumonia are complicated by *cerebral* symptoms of convulsions, delirium, stupor, vomiting, etc., even before

any marked lesions in the lungs appear; as these subside the lung symptoms appear. Many cases are protracted for a long time, and though they may terminate favorably at last, yet they are apt to run into a chronic hardening of the lung which lasts for years; or they recover with a permanent consolidation of the lung. Some die of exhaustion.

Treatment. — The use of hot fomentations and poultices over the chest and the administration of small doses of ipecac and aconite at short intervals soothe the bronchitis and pain.

For the cerebral symptoms, phenacetin and the bromides are very useful. Aconite and digitalis are usually employed when the pneumonia stage comes on. As a rule stimulants are not required in children, in whom the disease most frequently occurs.

In convalescence, iron, quinine, cod-liver oil, oxygen and a change of air are to be recommended.

Other Forms of Lung Inflammation.

OF the various other forms of lung inflammation which occur, mention may be made of pneumonia dependent on Heart Disease; Interstitial Pneumonia, or the formation of new connective tissue and obliteration of the air-spaces; Tubercular Pneumonia, which is caused by the presence of tubercle bacilli; Acute and Chronic Miliary Tuberculosis, characterized by the presence of numerous minute nodules called miliary tubercles; Acute and Chronic Tubercular Consumption; Gangrene of the Lung, where a portion of the lung has lost its vitality and the germs of putrefaction have entered.

Asthma.

Asthma may be defined to be great difficulty of drawing in the breath, — coming on suddenly, sometimes gradually, — accompanied with a sense of extreme suffocation, and a desire for fresh air; continuing for a longer or shorter period, and then passing away, and leaving the patient a period of comparatively easy respiration.

Symptoms. — There are sometimes no premonitory symptoms, the attack coming on suddenly, and without warning; but more frequently there are, for some days before the onset, loss of appetite, flatulence, belching of wind, irritability, languor, chilliness, oppression, and drowsiness. The hard breathing generally makes its appearance in the night, — quite often at three or four o'clock in the morning, when the nervous system is at its lowest ebb. There is first a sense of tightness, or stricture, across the chest, which seems to expand with difficulty. The patient can no longer remain lying down; he rises up, draws up his knees, and, leaning forward, puts his elbows upon them, and his head upon his hands, and then struggles hard to draw in his breath; which, passing in slowly and

laboriously, produces a loud wheezing sound. Sometimes he feels that he must have fresh air, and, rushing to a window, puts his head far out, to catch a stirring breeze. The hands and feet are cold, the face haggard and distressed, — sometimes a little red and swollen, but more generally pale and shrunk, — the body wet with perspiration, the pulse irregular, feeble, and small, though sometimes not disturbed. These symptoms continue for some hours, more or less, when the breathing becomes more easy, and there is a little phlegm raised, sometimes considerable. This cessation of difficult breathing may be complete, or only partial; and lasts for a longer or shorter period, when the attack again recurs.

Causes. — It is well known that Asthma has its cause mainly in the nervous system. The air-tubes are encircled with a series of little bundles of fibres, which are, in fact, muscles, and like all other muscles have the power of contracting or shortening themselves. These muscles, too, like all others, have nerves distributed to them; and when these nerves become diseased or irritable, they will become disturbed on certain occasions, and cause these small, circular puckering strings to contract and close up the air-tubes near their terminations, very much as the puckering-string closes the mouth of the work-bag, so that very little air can pass into the air-cells, and that little with great difficulty and slowness. When these contractions take place, and the air is thus shut off, the result is a fit of asthma. This disease may be brought on by any of those states of the atmosphere which disturb or irritate the bronchial surfaces, or by any of the numerous causes which mysteriously unbalance the nervous system. A fit may be brought on by whatever disturbs the mind.

In addition to this cause which is known as the bronchial type of asthma there are the cardiac and nephritic types. The so-called cardiac asthma, in the early stages is perhaps more amenable to treatment than the bronchial type but its course would not be effected by the drugs given for the latter type and appropriate remedies for the heart must be given. In the nephritic type the asthma is due to the retention in the system of the poison which is prevented from passing out of the body in the urine because of disease of the kidneys.

Treatment. — The disease has been regarded as extremely difficult of cure. There are certain remedies, however, which have a remarkable control over it, and, if skilfully used, will frequently bring it to a complete termination, and, even in the worst cases, to a state of very great mitigation and improvement.

Inhalation. — The most important and certain remedy is the use of the Alterative Inhalant, described on page 243. I have with this article alone effected some surprising cures; yet it is well to combine

other treatment with it. I have had several cases of a most distressing character, — the attacks continuing night and day, — in which the inhalation, judiciously administered, has caused the disappearance of the complaint within twenty-four hours, and in which no return of suffering has occurred for several weeks, and then only in a modified form. This remedy should be used four or five times a day.

Iodide of potassium is a most valuable internal remedy in this complaint; indeed, in a certain sense, it is almost a specific. It should be used (prescriptions 101, 138, 140, 151) at the same time with the inhalation. The following preparation is a very good remedy for this disease: Ethereal tincture of lobelia, two ounces; tincture of asafoetida, one ounce; grindelia, one ounce; iodide of potassium, two ounces; simple syrup, four ounces. Mix. Dose, from a teaspoonful to a tablespoonful, every hour or two.

Several other remedies are used for asthma, with more or less success, such as electro-magnetism, smoking stramonium leaves, burning paper dipped in a strong solution of nitrate of potash, and inhaling the smoke, etc., — but none of these have as much value as the two remedies first named.

For the cardiac type strychnia, digitalis, spartine, strophanthus and cocaine in appropriate dosage must be given to effect an improvement. For the kidney type relief of the system by other channels than the kidneys, until they are in better working order will be necessary. This can be accomplished by the use of saline cathartics such as one or two teaspoonfuls of epsom salts diluted with water, given often enough to cause two or three watery discharges during twenty-four hours. In addition to this sweating of the skin by means of hot lemonade or small doses of Dover's powders in hot drinks may be given.

In as grave a complaint as a severe case of asthma, it is always well to seek the aid of a physician.

Hay-Asthma. — Hay-Fever.

THIS is a very troublesome complaint, which seems to combine the peculiarities both of asthma and of influenza. Fortunately, it attacks but few persons, and those only at particular seasons of the year, — namely, while hay is in blossom, and during hay-making.

Symptoms. — These are a combination of the symptoms of the two diseases above named. There is great irritation of the eyes, with sneezing, and a free discharge from the nose. There is tightness across the chest, difficulty of breathing, and a pricking sensation in the throat. These symptoms often appear in great severity, making the complaint a really distressing one.

Cause. — This disorder appears to have but one cause, — namely, some sort of emanations from the grasses, flowers, etc., while in blossom; which emanations come in contact with the mucous lining of the eyes, nose, and throat, producing very great and teasing irritation.

Treatment. — One of the best remedies for this troublesome complaint is to avoid the cause, by removing, during the flowering and haying season, to some large city, or, still better, close down to the seashore, where flowers and hay do not grow.

Of medicines, the tincture of lobelia, taken in moderate doses, is a very good remedy. Quinine and iron, given in combination (75), are valuable preparations. Strychnine and nux vomica, in connection with iron or otherwise (316), (83), (84), (85), (86), (95), are very useful. Iodide of potassium (101), (138), (140), is also worth a trial. Another very good remedy is the chloride of lime, or the chloride of soda, placed in saucers about the sleeping-room. Pieces of cotton cloth may also be dipped in one of these solutions, and hung about the apartments of the house. The hands and face may likewise be washed, once or twice a day, in a weak solution.

The oxide of zinc and the extract of nux vomica, made into pills, two grains of the zinc to half a grain of the extract to each pill, and one pill taken morning and evening, should not be forgotten.

Of late cocaine, painted by means of a camel's hair brush on the mucous membrane of the nose, has been used to check a paroxysm and mitigate the disease.

The following formula is the most efficacious of this class of remedies and should be painted onto the nasal mucous membrane as high up as possible; its use may be repeated several times till the membrane becomes numb.

Cocaine	12 gr.
Antifebrin	25 gr.
Alcohol	1 dr.
Simple Elixir	3 dr.
Mix and shake before using.	

DISEASES of the HEART

HEART DISEASES.

(Also see Anatomy of Organs of Circulation.)

LIFE rests upon a tripod, — the brain, the lungs, and the heart. These are equally important to its well-being and continuance.

In substance, the human heart is a bundle of muscles, so put together as to bear the greatest possible amount of work. In size, shape, and look, it is much like the heart of the hog. I wish it never had a likeness to it in its moral nature.

The heart is enclosed in a case or sac, called the pericardium. It lies between the two lungs, a little to the left side of the chest. Its point is under the sixth rib on the left side, and its lower surface rests on the diaphragm, — a horizontal partition between the chest and belly.

The heart is double. It has four cavities, — two for receiving the blood, which are called *auricles*, and two for driving it out, called *ventricles*.

The venous, or dark blood, is brought from all parts below, and emptied into the right auricle through the *ascending vena cava*, and from all parts from above, and pour into the same cavity through the *descending vena cava*. From this it passes into the right ventricle, which contracts, and forces it through the pulmonary artery into the lungs, where it becomes *red*, and passes into the left auricle through the pulmonary vein, thence into the left ventricle, which contracts, and throws it out through the great aorta to all parts of the body. Fig. 95 gives a good idea of the circulation through the heart and lungs.

The heart is divided into two sides, which are separated from each other by a muscular partition, — each side having an auricle and a ventricle.

The auricles have comparatively thin walls, as they are only used for reservoirs. The walls of the ventricles are much thicker, being used, — particularly that of the left side, — for forcing the blood over a large surface.

Between the auricle and ventricle on the right side, are three folds of triangular membrane, called the *tricuspid* valves. Between the auricle and ventricle on the left side, are three valves, called *mitral*.

At the beginning of the *pulmonary artery*, and the *aorta*, are three half-moon shaped folds of membrane, called *semilunar valves*.

The office of all these valves is, to close after the blood has gone through, and prevent its flowing back while the cavity is being again filled. They do the same duty, in fact, as the valves of a pump.

Through this heart, thus constructed, all the blood in the body, — about twenty-eight pounds, — passes once in about one minute and a half. This is rapid work; and when we consider that the heart works in this way through the whole life, resting not, day or night, we cannot wonder that it gets out of order.

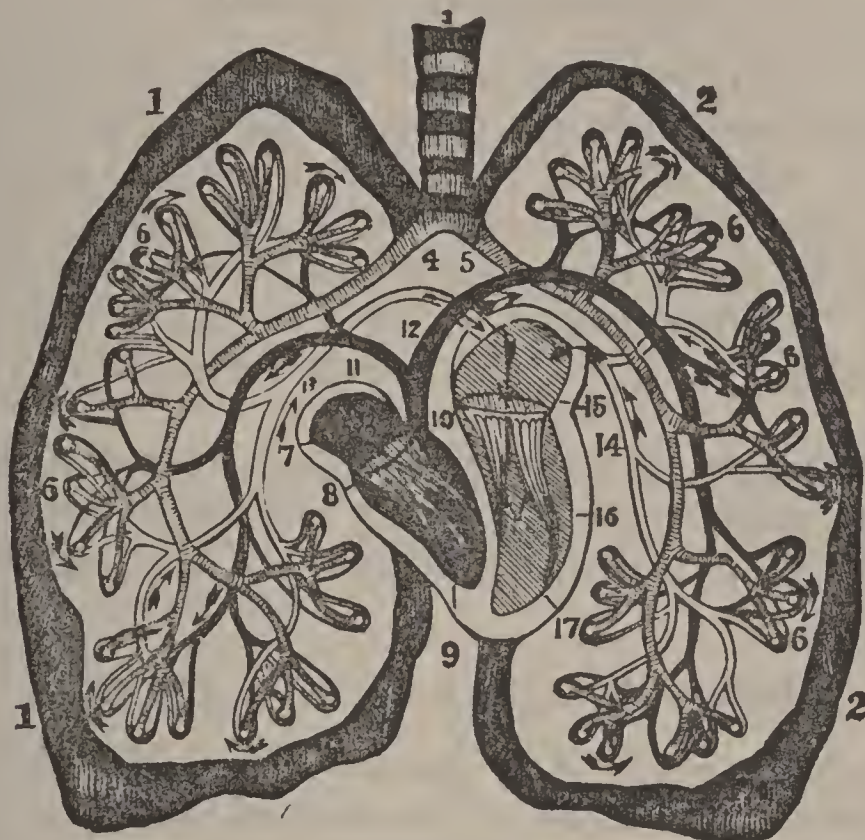


FIG. 95.

The whole heart is seldom affected. The left side is more liable to disease than the right.

Impulse of the Heart.

THE ear, when placed over the heart, feels, at each beat, a slight shock. This is felt at the same time the first sound is heard. This impulse is caused by the apex or point of the heart being thrown up against the ribs by the contraction of the ventricles. It is felt best between the cartilages of the fifth and sixth ribs on the left side.

The Sounds of the Heart.

ON applying the ear to the chest just over the heart, two sounds are heard. The first one is dull and slightly prolonged; the second is a shorter and smarter sound, having a sort of clack. These occur in pretty rapid succession, and then comes a brief interval. And this round of action, first a long and dull sound, then a short and smart one, and then an interval, — called the heart's *rhythm*, — is repeated continually. If the space of time occupied by the rhythm be divided

into five parts, the first sound will take about two parts, the second one, and the interval of repose, the remaining two. The first sound is heard about the time of the contraction of the ventricles, and is therefore called the *systolic* sound; the second is synchronous with the opening of the ventricles, and is called the *diastolic* sound. The syllables *too-to* — *too-to*, very fairly represent the two sounds of the heart. These sounds are heard over the largest space in lean persons.

Percussion Sounds.

IF the ends of the fingers be struck upon the chest over the heart, a dull sound will be heard over a space from one and a half to two inches square, — beginning at the fourth rib on the left side, and extending down nearly to the sixth. The dullness is diminished by lying upon the back, and increased by leaning forward, and by taking a full breath. The deadness of sound is caused by the heart being a partially solid body. The lungs which surround it yield a clear sound.

If a solid substance, as large as the heart, were placed on the inside of a drum, against the head, only a dead sound would be obtained by striking on that spot; everywhere else, the sound would be louder.

Altered Sounds of the Heart.

THESE sounds are changed by disease in a variety of ways, both as to their character and duration. One or both sounds may be turned into a noise like the blowing of a pair of bellows. This is called the *bellows sound*. When this sound is very harsh, it may become like the noise of a rasp, or file, or saw. These altered sounds are all produced by an altered condition of the valvular passages through which the blood passes. If you build an aqueduct of equal dimensions throughout, and smooth on the inside, you may send a certain volume of water through, at a given speed, without noise. But if you make sudden contractions in the aqueduct, or allow large stones to project into it, and then attempt to send through the same body of water, at the same rate of speed, you will hear all sorts of noises.

Enlargement or Hypertrophy of the Ventricles.

THIS is simply a thickening, or an increase of bulk, in the walls of the ventricles. The muscles composing the walls of one or both of these cavities grow thick and large.

Physical Signs. — Impulse stronger than natural. When considerable, it is accompanied with a lifting and heaving of the parts. Dull sound on percussion over a larger space. First sound of heart prolonged; second sound feeble. The interval of silence, shorter than natural. In bad cases, the second sound is nearly extinguished.

General Symptoms. — Hypertrophy of left ventricle gives a strong, prolonged, and tense *pulse*. Palpitation more constant than in any other disease of the heart. In advanced stages, the patient is easily out of breath. There is a rush of blood to the head on making exertion or stooping, with more or less throbbing and lancinating headaches, which are aggravated by suddenly lying down or rising up. There are vertigo, ringing in the ears, sparks of light and other illusions before the eyes; also a purplish, violet or livid color upon the cheeks, nose, and lips. In many cases there is a dull, severe aching pain in the region of the heart, and extending towards the shoulder and the inside of the arm.

When the *right* ventricle is enlarged, there is a swelling of the external jugular veins.

Causes. — The walls of the heart are thickened by *overwork*, in the same way that the blacksmith's arm is made muscular and large. All muscles grow in the same way. More action sends more blood to them, and this causes an increase of nutrition.

Whatever interposes an *obstacle* to the passage of the blood through the valvular openings, will cause the ventricles which force it through to work harder. Hence, obstructions in the semilunar valves cause hypertrophy of the ventricles.

Any excitement of the mind, or any great exertion, which causes the heart to beat harder and faster, if it be often repeated, will induce a thickening of the ventricles.

Treatment. — First, remove, as far as possible, all causes of excitement which produce palpitation. If the head is much affected, apply wet cups to the back of the neck. The same may be applied over the heart. This will generally improve the symptoms at once. A blister placed over the heart will likewise make a favorable impression.

The meals should be taken at regular intervals, and should be very light. The food should be plain and simple, and composed much more of vegetable than of animal food. In fact, the diet should be so spare as slightly to reduce the strength.

The patient should be careful never to take violent exercise, or, indeed to be in a hurry about anything. In bad cases, walking up hill, or against a strong wind, is often out of the question, and must in any case be attempted with great caution. Staircases are to be shunned as enemies. An attempt to run, even to avoid being left by the cars, might, in some cases, prove immediately fatal. Carriage-riding is not objectionable.

The passions must be held in the most thorough subjection. Excitements of all sorts are dangerous, and must be avoided.

For the first week or two of treatment, active purgatives will be useful. For this purpose, epsom salts and senna will answer a good purpose, and should be used so as to procure two or three watery stools a day.

In addition to this, some sedative to lessen the force of the heart's action is generally needed, especially when there is considerable palpitation. For this purpose, tincture of black cohosh, and tincture of scullcap, or the former with tincture of digitalis (285), (94), are quite useful. Three to ten drops of tincture of the American hellebore (*veratrum viride*) will reduce the action of the heart perhaps more effectually than any other medicine, for a few days or weeks.

Dilatation of the Ventricles.

THE several cavities of the heart hold about one and a half ounces each. Dilatation is simply an *enlargement* of these cavities, so that they will hold more. And this increase in the size of the cavity in simple dilatation is generally at the cost of the walls, which are made thinner and weaker, — just as the walls of a bladder are made thinner by blowing into it and increasing its internal dimensions.

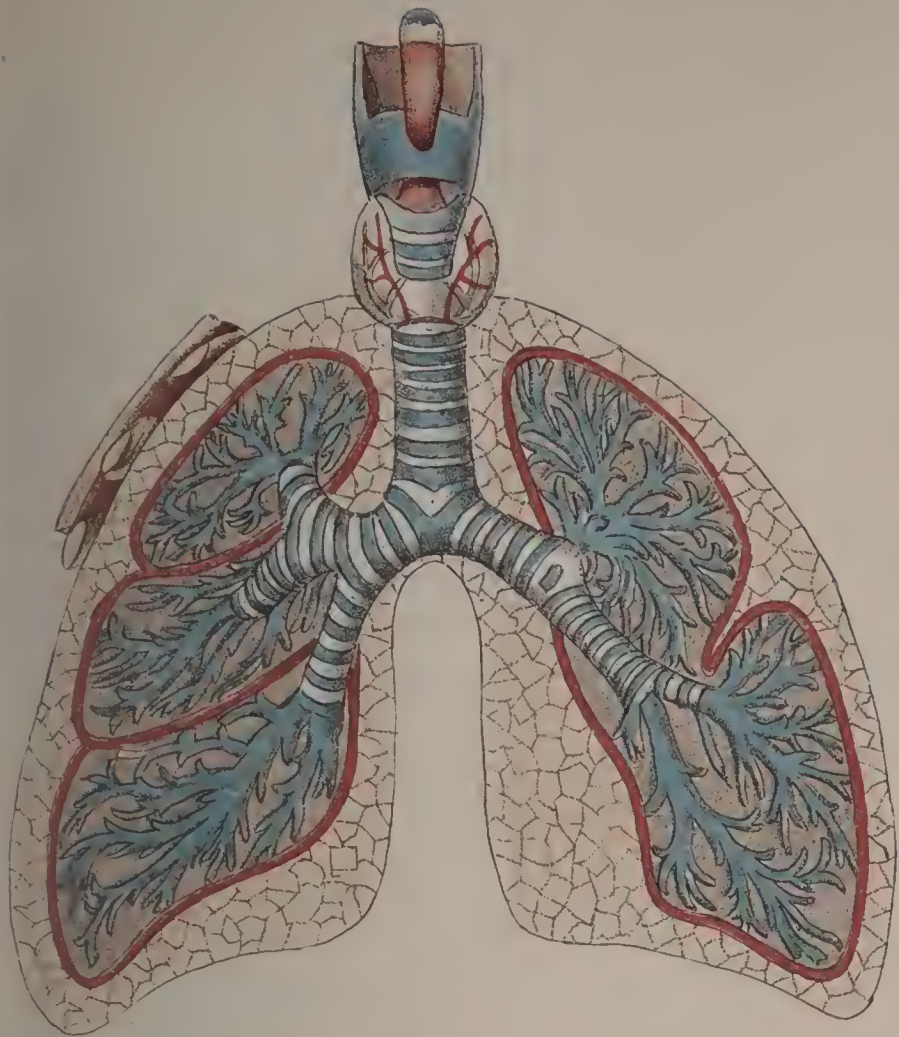
Physical Signs. — Impulse more abrupt, and less marked than natural. Dull sound on percussion commensurate in extent with the dilatation. The first beat of the heart, clearer, louder, and shorter than natural, and more nearly resembling the second.

General Symptoms. — Difficulty of breathing; terrific dreams; starting from sleep; swelling of the feet and legs; purple, violet, or blue color of the cheeks, nose, lips, and especially around the eyes; feeble and oppressed palpitation; various disturbances in the head; bleeding from the nose, stomach, bowels, and womb; and frequently enlargement of the liver.

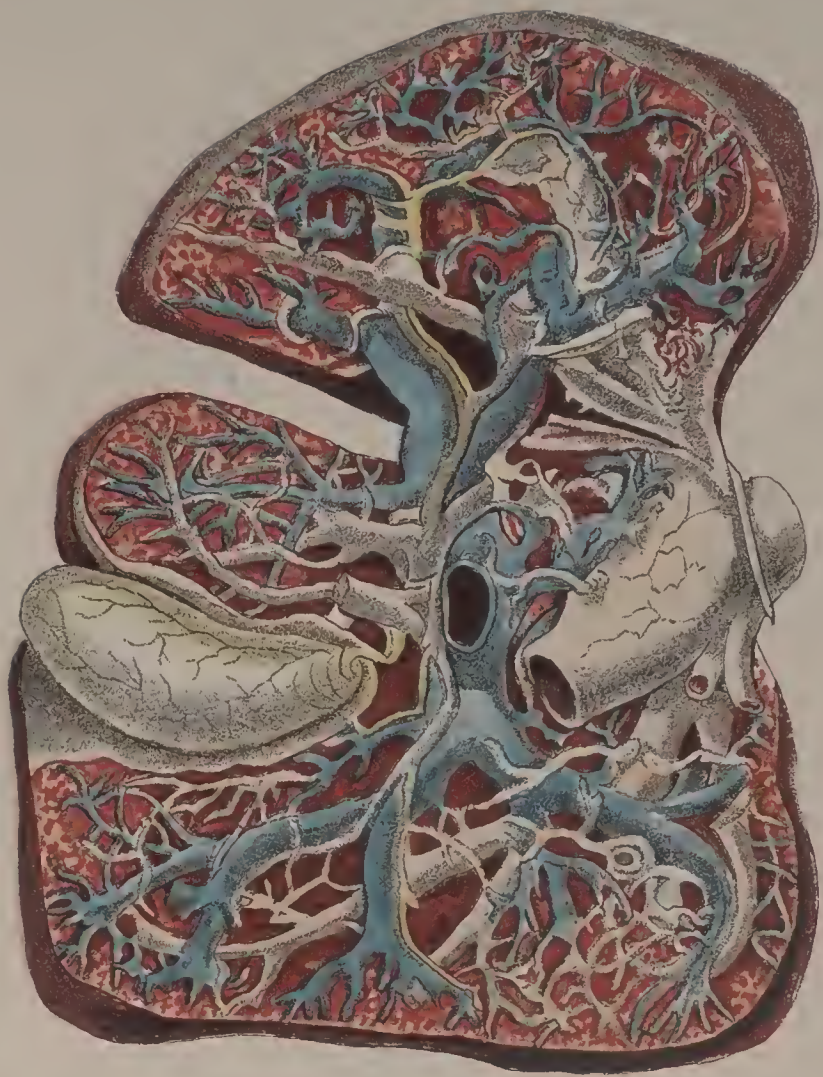
Explanations. — The first sound of the heart is short and not well marked, in consequence of the muscular walls of the ventricles in this disease being thin and in a weakened condition, so that every stroke they make is short, quick, and spasmodic, instead of strong and lifting, as in hypertrophy. For the same reason, the impulse is a brief blow dealt the walls of the chest, which gives a slight shock, but has not power enough to lift the chest up. The blow is quick, because the muscle is thin and can contract quicker than a thick one.

Dilatation, by thinning the walls of the cavities, enfeebles the heart, and shows us an obstructed circulation. Accordingly the blood is not transmitted by the left ventricle, and being retained in the lungs, it causes a crowded state of the vessels, and difficulty of breathing; also congestion of the brain, with terrific dreams, etc. And this engorgement of the lungs, being propagated backwards to the *right* heart, great veins, and all their ramifications, produces dropsy of the feet and legs, discoloration of the face, passive hemorrhages, and congestion of the brain, liver and membranes. Fig. 95 gives an idea of how all this happens.

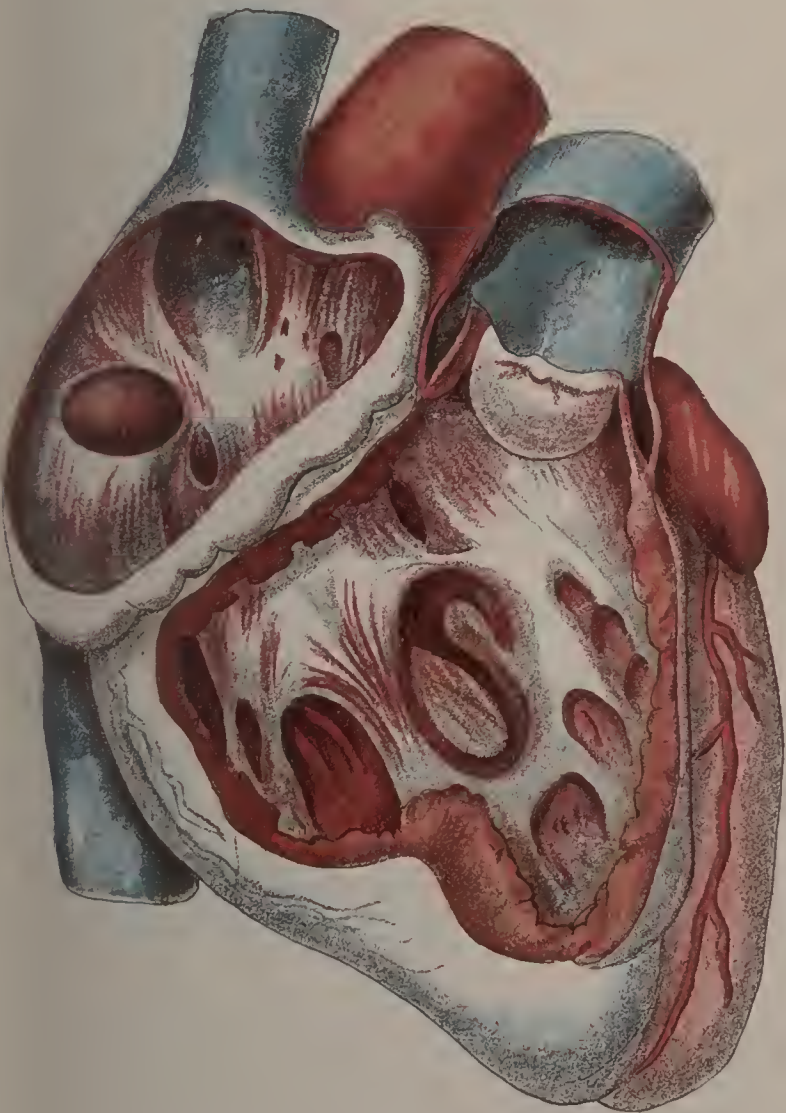
Treatment. — As in many other diseases, search out the causes, and remove them. If it be obstruction of the circulation in the lungs by



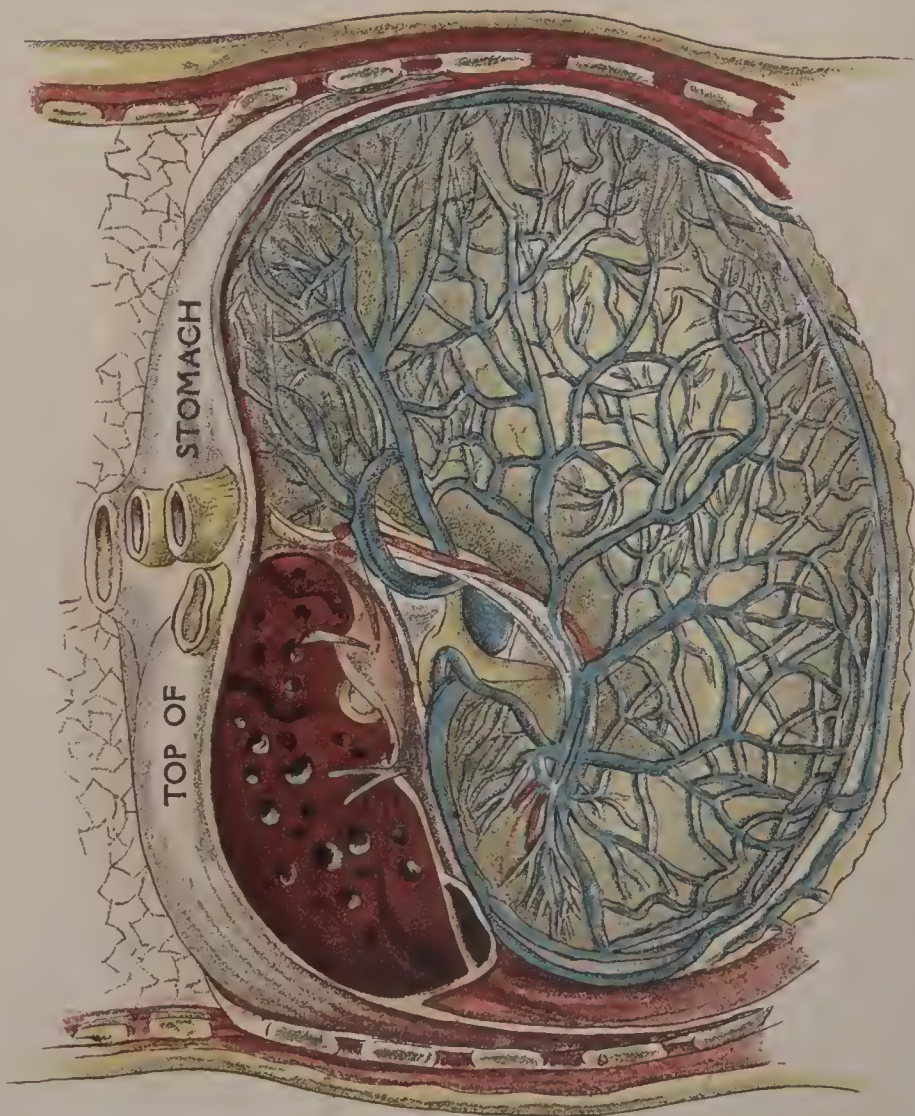
INTERIOR OF THE LUNGS
SHOWING TRACHEA AND BRONCHIAL TUBES



SECTION OF LIVER



INTERIOR OF THE HEART



FRONT VIEW OF THE STOMACH

bronchitis or other complaint, that needs the first attention. If it be caused by violent exercise, by strong emotions of the mind habitually indulged, or by drunkenness, or any other irregularity of life, these habits must be corrected without delay.

If it be caused by organic disease of the valves of the heart, relief cannot be so readily obtained; but even in these cases, it is to be sought and expected.

The circulation is to be kept as tranquil as possible by a strictly quiet and orderly life, and a plain, moderate, unstimulating diet. In this disease, however, it should be more nutritious, and composed to a larger extent of meats, than in hypertrophy.

In some cases the general health and tone of the system will need to be improved by bitters (50), (67), (64), (69), (79), mineral acids (60), iron (269), (61), and aromatics (115). The compound mixture of iron is a good preparation when this mineral is called for by a low state of the blood.

The stomach should be kept in the best possible condition, as a very small disturbance of it, even from acidity, will set the heart to beating very violently.

If hysterical symptoms are present, the compound galbanum pill, and valerian (97), and other *nervines* will be called for.

In attacks of great difficulty in breathing, immerse all the extremities in warm water, and throw a blanket around the patient to promote sweating, — at the same time admitting fresh air to satisfy the desire for breath. Give a draught, composed of ether, camphor, ammonia, etc. (135). This may be repeated two or three times, at intervals of half an hour, or an hour, according to the urgency of the case.

Hypertrophy with Slight Dilatation.

THIS is one of the most common complications of heart disease. It consists both in a thickening of the walls of the heart, and an enlargement of the cavities, — the former being more marked than the latter.

Physical Signs. — Both sounds are louder than in any other disease of the heart, and are heard sometimes over the whole chest. The impulse is strong and heaving, with an abrupt back-stroke. In bad cases, the whole person, and even the bed, is shaken by it. The dull sound on percussion covers a large space.

General Symptoms. — The same as those of the two diseases of which it is composed, slightly modified by the action of each upon the other.

Dilatation with Slight Hypertrophy.

THIS is an enlargement of the cavities of the heart, with a slight thickening of its walls; the dilatation being the predominant disease, or greater than hypertrophy.

Physical Signs. — Percussion gives a dull sound in the region of the heart, in proportion to its size. The first beat resembles the second. The second beat is louder than natural.

The impulse is a short, quick stroke, which contrasts strongly with the slower and heavier one of hypertrophy and dilatation.

The general symptoms and the treatment are a modification of those of the two disease united in it. It is, however, to be kept in mind that the dilatation takes the lead; and, furnishing the predominant symptoms, is specially to be regarded in the treatment.

Aneurismal Tumors of the Heart.

WHEN, from some obstruction in the valves, the blood cannot easily pass out of an auricle or a ventricle, its inner walls may become unable to bear the distending force, and giving way, let the blood through against the outer coats, which stretch, and swell out into the shape of a tumor, — the inside of the tumor becoming a regular *sac*. Such a state of things constitutes an aneurism of the heart. Of course it is a very grave disease.

Softening of the Heart.

IN this disease the substance of the heart becomes soft, and easily broken. It is generally the result of some form of inflammation.

Physical Signs. — The contractions of the heart being weakened by softening, the impulse is reduced in force, and both beats are weaker, and often they are intermittent. The first beat becomes short and flapping, like the second.

General Symptoms. — A quick, feeble, small, and faltering pulse, great anxiety, and a disposition to faint. General languor; a sallow, bloodless, withered complexion, with a purple, livid tint of the lips and cheeks, and frequently, general dropsy, from the inability of the heart to propel its contents.

Treatment. — When accompanied by acute inflammation, softening is to be treated on the same principles as inflammation of the heart-case.

If it be a result of chronic inflammation, it calls for iron, bitters, nutritious animal food, and good air.

Induration of the Heart.

THE muscular substance of the heart sometimes undergoes a hardening process. It is occasionally so much hardened as to sound, when struck, like a hollow horn vessel. The disease is rare.

It increases the heart's impulse, like hypertrophy; and it requires about the same treatment as that disease.

Fatty Degeneration of the Heart.

THE heart sometimes becomes overloaded with fat, which is deposited between the heart-case and the muscular substance, — covering the organ all over externally, and in some cases penetrating to some depth into its substance. The muscular walls themselves become thin and flabby.

Symptoms. — The sounds of the heart are diminished, — especially the first. The pulse is irregular. Pain, and a feeling of oppression in the region of the heart, with general signs of retarded circulation, such as congestion of the brain and liver. There is occasionally giddiness, loss of memory, and palpitation.

Treatment. — Exercise, mental excitement, and stimulating drinks must be avoided; and the patient must live for one or two years on a very light diet, taking but very little animal food.

Bony and Cartilaginous Productions in the Heart.

THESE productions in the heart are fortunately rare. Yet they occur; and the point of the heart, in its whole thickness, is sometimes changed to cartilage. The ventricles are sometimes so ossified as to resemble the bones of the head.

The symptoms of these degenerations are obscure; and as such cases are not curable, it is of less consequence that we should be able to know their precise nature during the life of the patient. The treatment can only afford temporary relief, and should be such as is prescribed in other heart-diseases with similar symptoms.

Shrinking of the Heart. — *Atrophy.*

THE heart, like any other muscle, is liable to defective nutrition, and in consequence of it may become small. It shrinks, in some cases, to the size of an infant's heart.

The complaint is generally caused by whatever reduces the general flesh, as consumption, diabetes, chronic dysentery, cancer, and excessive loss of blood.

It can hardly be called a disease. Persons who have it are less subject to inflammatory diseases than others, though they faint from slight causes, and have nervous affections.

Treatment. — If its causes can be discovered, treat them; if not the treatment should be the same as for dilatation.

Acute Inflammation of the Heart-Case. — *Pericarditis.*

THE pericardium, or heart-case, is a membranous sac, in which the heart is contained. It is composed of two layers. The outside

one is *fibrous*, dense and white; the inside one is *serous*. The serous layer forms the lining of the fibrous one, and then is reflected over the heart and the roots of the large blood-vessels.

When the pericardium becomes acutely inflamed, it throws out both lymph and serum or water. The lymph often causes the two layers of the sac to grow together.

Physical Signs. — The impulse is strong when the effusion of water is small, — feeble and unequal when it is large. Percussion yields a dull sound in proportion to the amount of fluid in the sac.

When listening with the stethoscope, a rough noise is heard, resembling either the rasping of wood, the grating of a nutmeg, the rustling of silk, or the crackling of parchment. Sometimes it is softer, like the blowing of a pair of bellows. Occasionally it resembles the creaking of a new shoe-sole, or has a low creaking, like the tearing of linen cloth.

When there is effusion, the ordinary beats of the heart sound dull and distant.

General Symptoms. — Acute inflammatory fever, generally preceded by chills, with pungent pain in the region of the heart, shooting to the left shoulder-blade, shoulder, and upper arm.

Pain increased by taking a full breath, by stretching the left side, by percussion, and by pressure between the ribs over the heart. Sometimes the pain is in the epigastrium, or left hypochondrium. Inability to lie on the left side.

Explanation. — The noises mentioned above are produced by the rubbing together of opposite surfaces of the heart-case, made rough by the exudation of lymph. The rasping is supposed to be caused by *firm* and *rugged* lymph; the rustling and creaking, by *soft* and *wet* lymph; the bellows murmur, by *soft* and *dry* lymph; the creaking, croaking, and crackling, by *dry*, *tough* lymph. These sounds may all be imitated by rubbing a damp finger upon the back of the hand, while listening with the stethoscope applied to the palm.

Chronic Inflammation of the Heart-Case.

WHEN acute pericarditis runs for more than ten days or a fortnight, it becomes *chronic*. It is chronic from the beginning, when it runs a slow, insidious course, without marked or violent symptoms.

The symptoms are much the same in kind with those of the acute form, only less in degree. This low grade of the symptoms of the disease renders it more obscure than the acute.

Treatment. — In the acute form of the disease, apply wet cups over the region of the heart, or apply from a dozen to forty leeches to the same parts.

At the same time, move the bowels freely by an injection (247), or by a purgative pill (31).

The strength and amount of the remedies employed in each case must be in proportion to the vigor of the patient's constitution.

It is of great importance that the treatment should be active and prompt, and that the disease should be broken down *early*.

Diluent, cooling drinks (132), (129), (298), (299), should be allowed as freely as the patient desires, in order to dilute the blood, and render it less stimulating to the heart.

At the same time, five to fifteen-drop doses of tincture of veratrum viride should be given every hour, to bring down the action of the heart. Ten-drop doses of tincture of digitalis every four hours are good.

Let the diet be wholly of barley-water, thin gruel, weak tea, or arrow-root.

During recovery, the diet must be spare, and the greatest tranquillity of mind and body be preserved.

In the treatment of chronic cases, when the cavity appears to contain fluid, counter-irritation is suitable. Blisters, croton-oil, the compound tar-plaster, and especially the tincture of iodine. The diet may be a little more nutritious than in the acute form of the disease, — embracing light animal food and broths.

Inflammation of the Heart. — *Carditis*.

THIS is an inflammation of the muscular substance of the heart. When existing alone, it is a very rare disease. Being mixed up with other forms of heart disease, it does not require any separate account of its symptoms or treatment.

Acute Inflammation of the Lining of the Heart. *Endocarditis*.

THE heart is one of the citadels of life. Disease attacks it on all sides. In this complaint, it has entered the fort and taken possession. The inflammation is on the *lining* membrane.

Physical Signs. — The impulse is violent, abrupt and regular, as long as the circulation through the heart is free, but when this is impeded, it is at first a confused tumult (which generally happens when a fort is first taken), and gradually sinks to a feeble flutter.

The dull sound upon percussion covers a space of from three to seven square inches.

The beats of the heart are generally accompanied or marked by a bellows murmur, the loudness of which depends on the strength of the heart's action.

General Symptoms. — Inflammatory fever. The action of the heart being generally violent and abrupt, the pulse corresponds with it, and is strong, full and hard.

Explanation.—The bellows sound is supposed to depend on the inflamed and swollen condition of the valves.

The dullness on percussion will be slight when the circulation through the heart is free;—more distinct and marked when it is obstructed.

Dr. Hope says the disease may be anticipated, if a person be *suddenly* attacked with these three signs: namely, fever, violent action of the heart, and a murmur which did not exist before.

This disease, like inflammation of the heart-case, is often produced by, and is intimately connected with, acute rheumatism, and is then to be treated on same principles as rheumatic disorders.

Chronic Inflammation of the Heart's Lining.

Physical Signs.—The impulse more perceptible and diffused than natural.

The dull sound upon percussion covers a space of from four to eight square inches.

There is a sawing, rasping, or filing sound. This sound may cover one or both beats of the heart. Sometimes these unnatural sounds are double; in which case, the first is caused by an obstruction to the natural flow of the blood forward; the second, by the regurgitation or retrograde flow of the blood from some defect in the valve,—just as a pump-valve may get out of order, and allow the water which has gone through to flow back.

Explanation.—A variety of organic changes occur in the valves, which give rise to the murmurs. Inflammation of the lining membrane of the heart reaches the valves, causing puckering, thickening, vegetative, cartilaginous, bony and fat-like degenerations, which *obstruct* the blood in its onward flow, or prevent a closure of the valves, and allow it to flow back; the former causing the first sound, the latter the second. If the unnatural noise be synchronous with the first beat of the heart, it implies disease in either set of the semilunar valves, or an impossibility of closing the auriculo-ventricular openings; if it accompany the second beat, it signifies that either set of the semilunar valves may be open.

A murmur attending the first beat of the heart *must* be caused by a current of blood *from* a ventricle; one attending a second sound, by a like necessity, is produced by a current *into* a ventricle.

Treatment.—The same as that for pericarditis. It should be equally *prompt* and *vigorous*. It must not be forgotten that this disease leads to various organic diseases of the valves of a very grave character, and that such mischiefs can only be escaped by cutting the disease short in the very beginning.

Disease of the Semilunar Valves.

THE inflammation of the lining of the heart makes sad work with the valves. The semilunars are subject to various changes in their structure.

Physical Signs. — Obstructive Murmur. — In disease of the semilunars, the first beat of the heart is accompanied or obscured either by the bellows murmur, or a sawing, rasping, or filing sound. The unnatural murmur, whatever it is, appears *superficial* or *near*. The second beat is natural.

When the opening into the aorta is contracted, or in any way obstructed by unhealthy growths, so that the blood is subjected to more than a natural degree of *friction* in passing, this sound will be heard. It is called *obstructive*, because it arises from the obstruction of the blood in its *forward* course.

Regurgitant Murmurs. — First beat of heart natural. Second beat accompanied or replaced by bellows murmur. There is sometimes a musical murmur.

Explanation. — The regurgitant murmurs arise from the valves being too small, or defective in some way, and allowing the blood to flow back through the orifice.

This murmur is loudest opposite the semilunar valves, and is more audible *above* these valves than *below* them.

When the aortic valves are contracted or shortened, and the openings are not guarded by them, so as to prevent the backward passage of the blood, there is a *double* bellows murmur, — one when it is *driven through* the orifice, and another when it *flows back*.

Disease of the Mitral Valves.

Physical Signs. — Obstructive Murmur. — First beat of heart natural. Second beat accompanied or replaced by bellows murmur.

Regurgitant Murmurs. — The first beat of the heart accompanied by a loud and rough bellows murmur. This sound is like sawing or filing. It is loudest above or below the nipple, between the fourth and seventh ribs. There is occasionally a musical murmur. The second beat of the heart is natural. Sometimes there is a purring tremor.

General Symptoms of Valvular Disease. — Cough, in many cases with watery expectoration; difficulty of breathing; frightful dreams and starting from sleep; congestion of the lungs; expectoration stained with dark and grumous blood; swelling of the jugular veins; a livid look of the face; a feeling as if a cord were tied tight around the lower part of the chest; general dropsy, of the legs and feet in

particular; passive hemorrhages from the mucous membranes; engorgement of the liver and spleen; congestion of the brain, with feelings of oppression. When the mitral valve is contracted, admitting regurgitation, the pulse is small, weak, irregular and intermittent.

These are the worst symptoms of an advanced stage.

Explanations. — The examiner will distinguish the various sounds thus:

The murmurs generated at the origin of the arteries spread their sonorous currents *upwards along these arteries*.

Those produced in the auricular orifices will be conducted into the auricles, and propagated *downwards towards the apex of the heart*.

Which Set of Valves. — To learn in which set of valves it originates, therefore, find its seat, and *trace its direction*.

Finding the murmur to be in the *aortic orifice*, it is then known to be *obstructive*, if the first sound is morbid, and the second sound natural; and *regurgitant*, if the first sound is natural, and the second sound morbid.

But if the murmur be in the mitral orifice, it is *obstructive* when the first beat of the heart is natural, and the second beat morbid; and *regurgitant* when the first beat is morbid and the second beat natural.

The Pitch or Key of a murmur depends on the distance of its seat from the ear of the listener, — *nearness giving a high, and distance a low key*. Thus, a murmur seated in the orifice of the pulmonary artery, being *nearer* the surface, has a *higher pitch* than any other. It is on about the same key with a whispered s, — sometimes a little lower, and depending somewhat on the *strength* of the current of blood, *a strong current elevating, and a weak current depressing the tone*.

The mitral orifice is situated opposite the junction of the cartilage of the third rib with the left side of the breast-bone. The aortic orifice is about half an inch to the right of this, and the same distance lower. It is known by the key being lower, — about like a whispered r, which is the ordinary type of the sawing sound.

Murmurs from pulmonic and aortic *regurgitations* are about two tones lower, in consequence of the currents of the blood being weaker. They are like whispering *awe* by *inspiration* and if the click of the valve be heard, the sound will be changed to *paw*.

Murmurs in the mitral valve, being more deeply seated, are about four tones lower, and are like a whispered *who*.

The tricuspid murmurs are higher than the mitral, because nearer the surface.

The musical murmur has been compared to whistling, the cooing of a dove, and the mewing of a kitten. It generally results from regurgitation.

The purring tremor is caused, generally, by regurgitation through the mitral valve.

Other Symptoms Explained. — The difficulty of breathing, frightful dreams, congestion of the lungs, hemorrhages, engorgements, etc., mentioned above, all proceed from such valvular stiffenings, puckeringings, ossifications, enlargements, and contractions, as occasion a decidedly *obstructed* circulation.

The small, weak, irregular, and interrupted pulse, is caused by contraction of the mitral valve, which occasions an insufficient or irregular supply of blood to the ventricle, and causes the ventricle, by losing the resistance of the valve, to expend its force in a backward as well as a forward direction, thus sending but little blood into the arteries.

Treatment.—The great object of treatment is to diminish the force and activity of the circulation,—to induce the heart to cease striving to do what cannot be done.

To accomplish this, give sedatives (285), (94), (124). The hellebore and cohosh will be found particularly serviceable.

The tincture of the American hellebore is about the best of all. Purgatives may be given according to the strength of the patient.

When there is dropsy, and a scanty secretion of high-colored urine, diuretics, or medicines to increase the action of the kidneys, are very important. For this purpose, digitalis and acetate of potash (130) are excellent. Should this not succeed in reducing the dropsy, an active purgative (31) may accompany it.

A remedy which comes in powder form called diuretin, given in 20 grain doses dissolved in water every four hours for one or two days exerts a favorable influence in many cases. If no improvement has been noticed at the end of two days the remedy may be discontinued, but it has worked so satisfactory in a large per cent. of cases that its use is justified.

Diaphoretics, or medicines which promote perspiration, are also useful.

The diet should be unstimulating, and yet should be sufficiently nourishing to prevent the patient from running too low. Animal food of the most digestible kind may be taken once a day; though there are many cases requiring its entire rejection.

The passions should be kept in the most perfect subjection, and *the life should be as tranquil as possible. Nothing must be done in a hurry.*

Water in the Heart-Case. — *Hydropericardium.*

THIS disease is common as an attendant of general dropsy.

Physical Signs. — The impulse is undulatory, as if transmitted through a fluid, and it is not always of the same strength.

The dullness extends upward in a conical form, in proportion to

the amount of fluid, — sometimes rising as high as the second rib. The impulse does not coincide with the first beat of the heart.

General Symptoms. — The patient has a *sensation of the heart being in a floating state*. The pulse is small, frequent, and intermittent.

Explanation. — The reason that the impulse does not occur at the same time with the first beat of the heart is, that the apex does not *immediately* strike the walls of the chest, — some time being required to push it up through the fluid.

The beats of the heart sound more distant than natural in consequence of the organ being pushed away from the walls of the chest by the fluid and the impulse will be noticed in the usual place namely, inside the nipple line between the fifth and sixth rib spaces, but the intensity of the sound will be lessened. The position is in a different place; in dilatation of the heart, when the impulse more or less faint will be noticed far to the left of the nipple line.

Palpitation. — Nervous Palpitation. — Anæmic Palpitation.

THERE is a great deal of palpitation of the heart dependent on dyspepsia, hypochondria, hysterics, mental agitation, excessive study with deficient sleep, venereal excesses, and masturbation.

Palpitations likewise occur from what is called *anæmia*, or a low and deficient state of the blood.

Physical Signs. — The impulse is weak, fluttering, or tumultuous, — generally increased by trifles.

The beats of the heart are increased in frequency, and sometimes marked by intermission. Now and then they are accompanied by a bellows murmur. There are musical murmurs in the jugular veins, — loudest a little above the collar-bones.

General Symptoms. — The complexion is generally pallid and bloodless; the lips and the inside of the mouth partaking of the same paleness; the pulse quick, small, weak, and jerking; and during palpitation it sometimes has a thrill. Slight causes produce breathlessness and faintness. A dislike of animal food, and a fondness for acids. The monthly discharge in females is deficient, and the whites take its place. Sometimes the menses are too profuse, lasting for several days, and consisting only of blood. In this state of things there is great feebleness both of mind and body, with rushing noises in the ears.

Explanations. — The murmurs depend on a lack of blood. The conditions of their existence are, thinness of blood, a swift and spasmodic circulation, and particularly an unfilled condition of the blood-vessels. A brook is the more babbling in proportion as its water is more shallow. It is a law in physics, that heaviness of freight gives

steadiness of motion; and lightness of freight gives unsteady motion. The fireman's hose trembles and vibrates when only half full of water. In like manner the blood-vessels are agitated when imperfectly filled.

Treatment: — This is to be governed altogether by the cause of the trouble. If it be dyspepsia, hypochondria, hysterics, etc., these several diseases require their usual treatment; when they are cured, the palpitation will stop.

A very good treatment for this disorder is a teaspoonful of the following mixture given three or four times a day with water:

Tincture of aconite	fifteen (15) drops.
Tincture of nux vomica	three (3) drachms.
Compound elixir of gentian with iron	three (3) ounces.

But when it is caused by a low state of the blood, then give for several weeks, iron, the compound mixture, and (316), (310).

The food must likewise be nourishing, — tender meat, beef and mutton, with broths, etc.

Gentle exercise will be required, and much exposure to a bracing out-door air.

Neuralgia of the Heart. — *Angina Pectoris*.

THIS is a strictly nervous disease. It begins with a sensation of pain and constriction in the region of the heart. This pain is accompanied with more or less pain and numbness in the left arm. In females it is not uncommon for it to be attended by great sensitiveness and pain of the breasts. When the attack is violent, the pain in the heart is excruciating, and even terrific. There is attending this a feeling of great oppression in the chest, amounting, in the worst cases, to a sense of suffocation. The heart palpitates violently, the brain is oppressed, and fainting sometimes occurs.

The disease is brought on, in nervous subjects, by over-excitement of the heart. Walking up hill, against a strong wind, may bring it on. If walking at the time of the attack, the patient is compelled to stop, and stand still till the pain subsides.

The disease is often connected with organic changes in the heart's structure, such as ossifications and other alterations.

Treatment. — When the complaint depends on organic disease of the heart, the treatment must be directed to the cure of these diseases.

To relieve a severe attack, the patient should be instantly placed in a quiet position; wind in the stomach, if present, should be expelled by peppermint or anise water, or ether, or (115), or some other aromatic. If there is acidity or sourness of the stomach, it must be corrected by a teaspoonful of soda in half a tumbler of water; and if the stomach be full of undigested food, let the patient take a tablespoonful of ground mustard, stirred up with a teacupful of warm water. This will cause almost instant vomiting.

These things being done, give some quieting or antispasmodic medicines, or one of the following prescriptions: (285), (97), (135), (124). Inhale 5 drops of nitrite of amyl on a cloth frequently.

Great relief is often obtained by sending a current of magnetism through the region of the heart, by applying one pole of the machine in front, and the other upon the back.

During the intervals, the general health is to be improved by a wholesome, nourishing diet, gentle out-door exercise, and a careful control of all the passions. $\frac{1}{100}$ of a grain of nitro-glycerine every hour, while in pain, steadies and slows the heart.

Polypus of the Heart.

A PORTION of the fibrin sometimes separates from the blood in the heart and large vessels, and becoming more or less organized, forms polypuses, which fill the cavities to which they are attached, and seriously obstruct the circulation.

Physical Signs. — When the pulsations of the heart, previously regular, become suddenly anomalous, confused, and obscure, so that they cannot be analyzed, we may suspect a polypus.

General Symptoms. — A sudden and great aggravation of the bad breathing, without any visible cause, — the patient being in agony from a sense of impending suffocation, and tossing about from side to side, struggling for breath. The pulse small, weak, irregular, intermittent, and unequal; the surface and extremities cold; the face, livid, — to which there is generally added nausea and vomiting.

Treatment. — When the polypus is once formed, the case is hopeless. The treatment, therefore, can only be preventive.

The chief things to be done are, to keep the patient in a state of entire tranquillity, and to bring the circulation to the surface, by keeping the skin warm, and excited by friction. This will call the blood away from the heart and great vessels, and lessen the chances of the polypus.

Displacements of the Heart.

THE heart may be misplaced from birth. I have seen a case in which it lay upon the right side, and had always been in that position. Its action was natural.

A variety of causes may tend to push it out of its place, as water in the cavity of the pleura. In such cases, it will return to its place when the water is drawn off or absorbed.

DISEASES
OF THE
ABDOMINAL CAVITY

DISEASES OF THE ABDOMINAL CAVITY.

UNDER the above head I shall consider most of the diseases which occur in the great cavity below the diaphragm, called the abdomen or belly. These affections are quite important, and make up a considerable part of the ills we suffer from disease.

Before speaking of these diseases, however, I will call the reader's attention to a profile view of the relative position of the several organs lodged in this cavity.

In Fig. 96, L is the *liver*, S the *stomach*, C the *colon*, R the *rectum*, B the *bladder*, P D the *pancreas*, and I the *intestines*. The double lines, folded back upon each other, and surrounding most of the organs, represent the *peritoneum*, a membrane which lines the great cavity of which I am speaking.

It will be well, too, before proceeding further, to make the reader acquainted with the names of certain *regions* of the abdomen which he will find constantly spoken of in medical books. I have not used these terms much in my book; but it will be convenient to be acquainted with them. Physicians who are careless in their readings are not always familiar with their exact locality.

In Fig. 97, the abdomen is divided into nine different regions by the drawing of two parallel lines up and down, 2, 2, and 3, 3, and two lines across, 4, 4, and 1, 1. This gives three regions above, three in the middle, and three below.

In the upper row, 6 is the *epigastrium* or *epigastric region*, in which are the left lobe of the liver, and a portion of the stomach; 5, on the

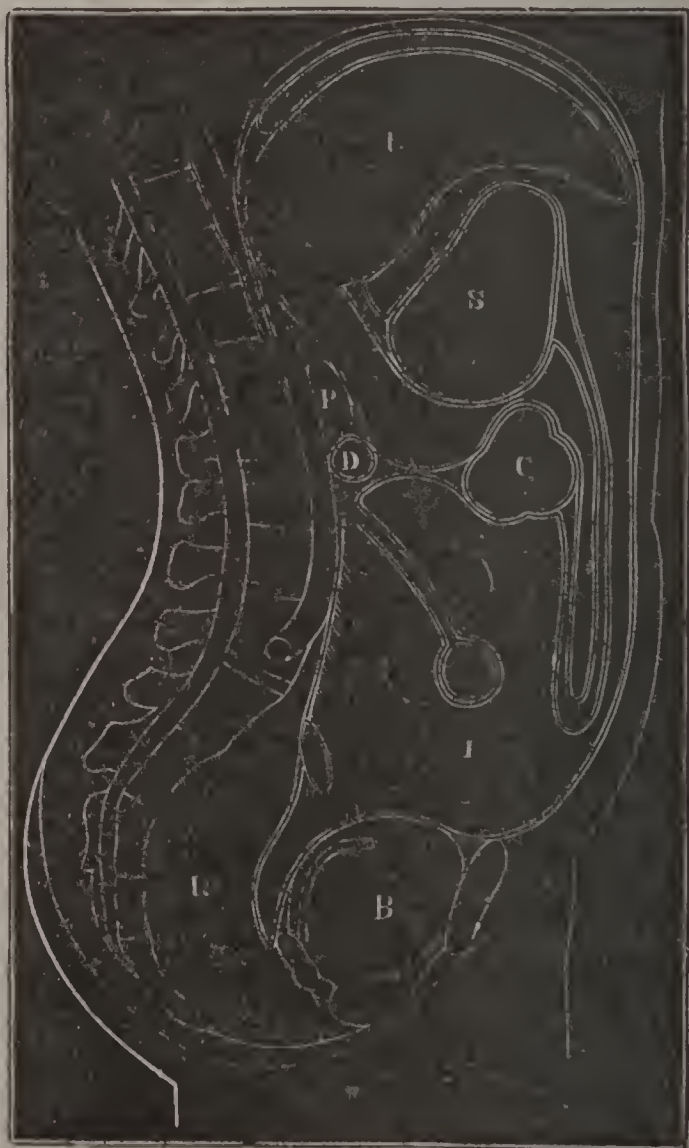


FIG. 96.

right side, is the *right hypochondrium*, in which is the right lobe of the liver; and 5, on the left side, is the *left hypochondrium*, which contains the spleen, and a portion of the stomach and liver.



FIG. 97.

In the middle row, 7 is the *umbilical region*, which contains the small intestines. On the right side, 8 is the *right lumbar region*, which holds the right kidney and the ascending colon; and 8, on the left, is the *left lumbar region*, which contains the left kidney and the descending colon.

In the lower row, 9 is the *hypogastrium* or *hypogastric region*, which contains a portion of the small intestines and bladder. On the right, 10 is the *right iliac fossa*, containing the *cæcum* or *caput coli*; and 10, on the left, is the *left iliac fossa*, containing the sigmoid flexure.

And now I may as well present, in Fig. 98, a front view of many of the organs, both in the chest and abdomen: 1, 1, 1, 1, are the muscles of the chest; 2, 2, 2, 2, the ribs; 3, 3, 3, the upper, middle, and lower lobes of the right lung; 4, 4, the lobes of the left lung; 5, the right ventricle of the heart; 6, the left ventricle; 7, the right auricle of the heart; 8, the left auricle; 9, the pulmonary artery; 10, the aorta; 11, the vena cava descendens; 12, the windpipe; 13, œsophagus; 14, 14, 14, 14, the pleura; 15, 15, 15, the diaphragm; 16, 16, the right and left lobes of the liver; 17, the gall-bladder; 18, stomach; 26, the spleen; 19, 19, the duodenum; 20, the ascending colon; 24, the transverse colon; 25, the descending colon; 22, 22, 22, 22, the small intestines; 23, 23, the

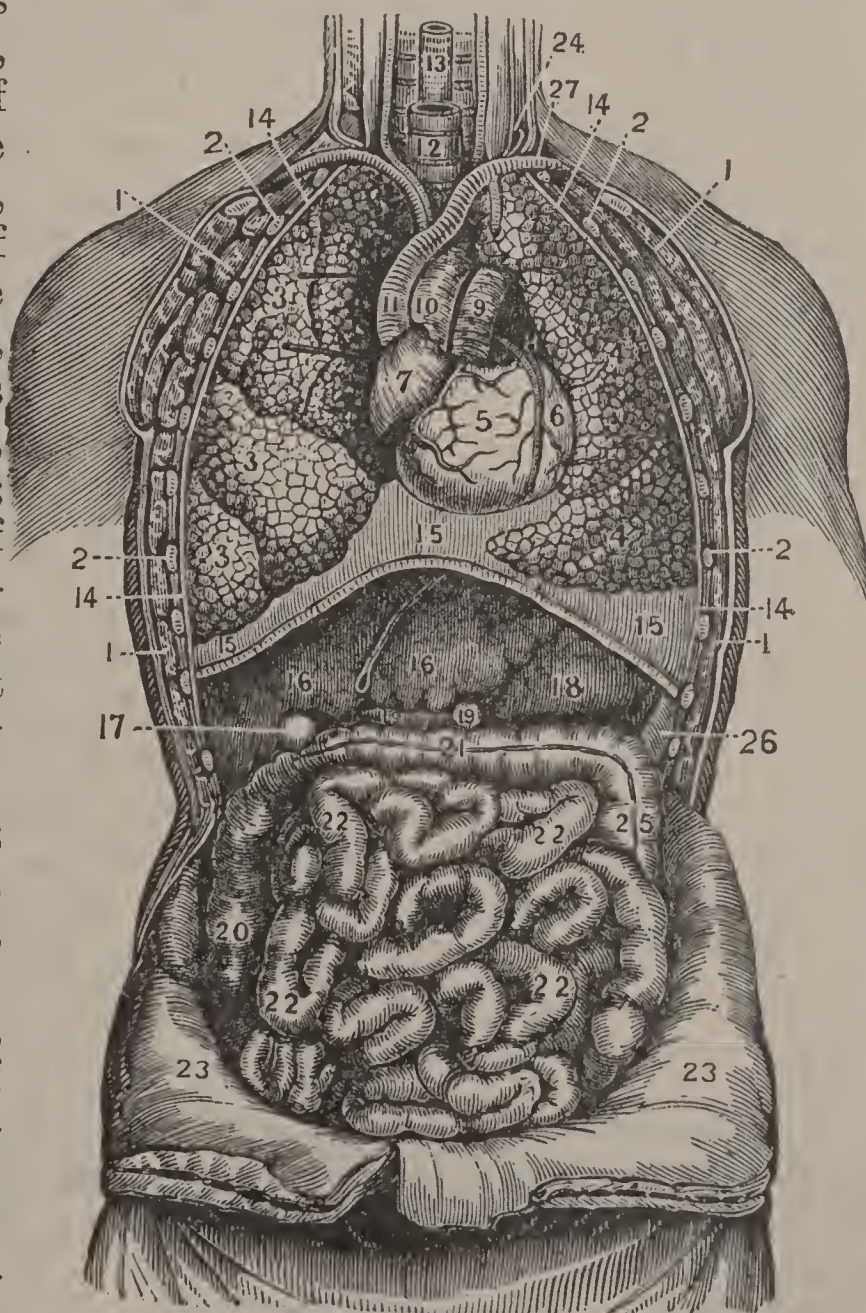


FIG. 98.

walls of the belly turned down; 24, the thoracic duct, opening into the left subclavian vein (27).

Acute Inflammation of the Liver. — *Hepatitis.*

THE liver is the largest gland in the body. (See Fig. 31.) It lies in the right side, and at the top of the great abdominal cavity, directly under the midriff, and lapping upon the stomach. Fig. 96 shows its relative position. Its office was supposed to be to take the superabundant carbon out of the blood. This carbon it unites with other elements and forms bile, the peculiar bitter substance which is poured into the upper bowel, and greatly aids digestion.

The liver is liable to become inflamed from several causes, such as gravel-stones, external violence, suppressed secretions, hot climates, inflammation of the duodenum, etc.

Symptoms. — These are sympathetic fever, with pain, and a sense of tension in the right side, inability to lie on the left side, difficulty of breathing, a dry cough, vomiting, and hiccup.

The pain is acute and lancinating generally, though sometimes dull and tensive. When sharp, it is like the stitch of pleurisy, and it indicates that the peritoneum which covers the liver is inflamed. When dull, it is the body of the organ which is suffering. When the convex surface of the liver is the seat of the disease, the pain is apt to run up to the right collar-bone, and to the top of the right shoulder. Breathing, coughing, and lying on the left side, increase the pain. A soreness is felt by pressing over the liver. The pulse is full, hard, and strong, the bowels are costive, and the stools are clay-colored, owing to not being tinged with bile,—this having stopped flowing. The tongue is covered with a yellow, dark brown, or even black coat, and there is a bitter taste in the mouth.

Explanation. — The bile, secreted by the liver, is poured into the upper bowel, and gives the brown or yellow color to the contents of the bowels. When the liver is inflamed, it cannot work,—it secretes little or no bile, and the discharges from the bowels lose their color. The bile is slightly laxative, and when it ceases to flow into the bowels, they become bound or costive. When the liver does not work, the bile has to be taken out of the blood by the kidneys, and the urine becomes of a deep yellow color. Much of it goes out through the skin, too, which is likewise yellow, and the sweat becomes so yellow as to stain the linen.

Treatment. — Flax-seed poultices applied over the liver are very good. Purgatives will also need to be used pretty freely at first. Those which produce watery stools (31), (247), (34), will be of the greatest service.

After the cups and purgatives have been thoroughly used, blisters will be useful, and it will be better to apply several in succession.

rather than to keep the first one open. Or, in the milder cases, a mustard poultice may be applied over the whole side, and even along the spine.

Frictions over the stomach and liver with dilute nitro-muriatic acid, and a foot-bath of the same, will sometimes do well. The acid should be reduced with water to about the strength of sharp vinegar. Water a little soured with this same acid makes an excellent drink for the patient.

Perspiration should be induced by the spirit vapor-bath, and kept up gently by the tincture of the American hellebore, from three to ten drops every hour. Or, the same thing may be done by prescriptions (126), (358).

When the urine is small in quantity and red, give some diuretic, as infusion of marshmallow-root, pumpkin-seeds, or trailing arbutus.

The diet should be rice-water, gruel, and toast-water. While getting up, it may gradually be improved, and some light tonics (49), (58), (64) be added to it.

Chronic Inflammation of the Liver. — *Chronic Hepatitis.*

THERE are few chronic diseases for which the physician is more often consulted than this. In the warm climate of the South, in the bilious districts of the West, and indeed even in the Middle and Eastern States, it meets us continually, and demands our attention. That it is difficult to cure must be admitted; but a constant familiarity with chronic diseases, for several years, has convinced me that it is generally curable.

Symptoms. — A sense of fulness and weight in the right side with some enlargement, and shooting pains felt in the same region, particularly when it is pressed, with pains in one or both shoulders, and under the shoulder-blades; uncomfortable sensations when lying on the left side; yellowness of the skin, eyes, and urine; bowels irregular, loose, or costive; appetite disturbed; sometimes a dry, hacking cough; shortness of breath; tongue whitish, and brown or yellow towards the root; a bitter and bad taste in the mouth in the morning. The urine deposits a sediment on standing. There is generally a low and desponding state of mind, with irritability and peevishness of temper.

The skin is often covered with yellow spots and with a branny substance. The various symptoms of dyspepsia are often present. The nervous system is generally much disturbed, and there is a disinclination to apply the mind. There is frequently a great dread of imagined evil, supposed to be impending.

Treatment. — This does not require to be as active as that for the acute form of the disease.

If there be much tenderness of the liver, begin with mustard poultices, and the compound pills of podophyllin, or the compound pills of leptandrin, or (36).

I have abandoned the use of mercury in this disease, as in most others; but if any prefer to use it, the blue pill (52) will be found the most useful form.

The compound tar-plaster placed over the liver, in bad cases, is often very serviceable.

An alterative (138), (146) will be found useful.

The daily alkaline sponge-bath must on no account be omitted. Vigorous friction must follow it. Vigorous constitutions will bear the shower-bath; in such cases it may, occasionally, take the place of the sponge-bath.

The diet must be simple, yet nourishing and wholesome, and embracing but a small amount of fat, as this is composed largely of carbon, and the liver is unable to remove what is already in the blood.

Especially and above all, out-door exercise must be taken to the full amount of the strength, and the thoughts be occupied with cheerful subjects. Let the hot sun be avoided, and the summer exercise be taken in the cool hours of the day.

The recovery from this, as from all other chronic diseases, must necessarily be slow.

Congestion of the Liver.

THIS is not strictly a disease, but the result of gastro-intestinal disorders. There is an enlarged, congested liver, with a sense of fulness and weight in the right side under the ribs.

The application of heat, and even leeches, to the side, and the administration of saline laxatives, afford relief. The diet must be light and farinaceous.

Passive Congestion of the Liver

RESULTS from mechanical obstruction to the outflow of blood from the liver. When this condition has existed some time, there is a sense of weight and fullness in the liver region when sitting up or lying on the left side. The liver is enlarged and tender; the breath is shortened, and pain may be present, extending to the shoulder.

Jaundice is usually present, but only to a slight degree. When the heart is the cause of the obstruction to the outflow of blood, there is often present an associated gastro-duodenal catarrh, in which case loss of appetite, nausea, vomiting, belching of gas, and pain, are also present. In the later stages of a prolonged case, ascites, or dropsy of the peritoneal cavity, is present.

Prognosis. — The outcome of passive congestion of the liver is usually grave, since it is the result of some structural disease elsewhere, as of the heart, asthma, chronic pleurisy, tumors, etc.

Treatment. — The indications for treatment are to strengthen the heart with digitalis, strophanthus, etc., increase the strength of the patient with strong, stimulating food, and to deplete the portal circulation by vegetable laxatives like podophyllin, rhubarb, aloes, etc.; the salines also furnish an agreeable method of depletion, as for instance, Crab-orchard water, Hunjadi, etc. It occurs usually after middle life, and is more common in women than men. It is usually secondary to cancer elsewhere, as in the bowels or stomach, rectum and womb. The liver is increased in size, and is frequently studded with cancerous nodules, which in well-marked cases may be felt through the abdominal wall.

The disease usually gives rise to loss of appetite, nausea, vomiting, constipation, emaciation and weakness. Pain over the liver is generally present, while jaundice exists in about fifty per cent of cases. Dropsy of the bowels exists likewise in about the same proportion of cases. Hemorrhages from the nose, stomach and bowels occur in the later stages of the disease. The temperature is usually lower than normal, and the pulse slow, especially if jaundice be present; the urine is diminished in amount and high colored. The disease progressively advances to a fatal termination inside of a year. No known treatment is of avail in arresting the terrible malady.

Cirrhosis of the Liver.

THIS is a disease characterized by an excessive increase of the fibrous tissue in the liver, whose later function is to contract and squeeze out, so to speak, the softer, glandular structure of the liver proper, thus causing its atrophy and diminution in size. The disease is caused mainly by the introduction into the portal system of some irritant like alcohol. It is generally known as the gin-drinker's liver, but it does not result especially from gin any more than from any other spirit. It is, at all events, essentially a disease due to prolonged though moderate use of spirits of one sort or another, and occurs between the ages of thirty and sixty, mostly in men.

The symptoms of this disease are at first those of gastric and intestinal disorders due to alcohol, as nausea, flatulence, constipation and looseness, etc.

Dropsy is finally the most pronounced symptom of the disease, but hemorrhages from the bowels not infrequently occur. The distension of the abdomen by dropsy is sometimes enormous; finally the feet and legs become swollen, emaciation and weakness progress, and the patient may finally die in coma or convulsions. The disease, when sufficiently advanced to be recognized, is incurable.

Treatment. — The treatment is to be directed toward the removal of all irritating food and alcohol. The diet should consist largely of milk; green vegetables and fruit, beans, peas, eggs, lean meat, etc., may be taken if well borne.

The stomach and bowels are to be kept in good condition, the dropsy drawn off or removed by means of loose evacuations from the bowels.

Hydrochloric acid in three-drop doses, well diluted, after meals, may be of service, while bitter stomach-tonics are to be given before eating.

Acute Inflammation of the Spleen. — *Splenitis*.

THE spleen is in the upper part of the belly, on the left side, opposite the liver. It is subject to acute inflammation, which is known by a pain just under the short ribs on the left side, also by swelling, soreness to the touch, and by more or less fever. The pain often shoots up through the midriff and to the left shoulder. There is a short, dry cough; a feeling of tightness about the heart; a sickness at the stomach, and vomiting; and a discharge frequently of black blood from the bowels. The urine is scanty, is passed with some difficulty, and is high-colored.

This disease appears most frequently in hot climates, and is often connected with intermittent fevers.

Chronic Inflammation of the Spleen.

THIS prevails most in fever-and-ague districts, and is a frequent result of chills and fever. It is generally very stubborn, often lasting many years.

Symptoms. — A feeling of weight, tightness, and sometimes pain in the left side, the pain being increased by pressure, or an attempt to lie on the left side. The organ sometimes enlarges very much, so that it can be felt by the hand. This enlarged mass passes under the common name of “ague cake.” There are sometimes numbness, weakness of the legs, difficulty of breathing, palpitation of the heart, inability to exercise much, obstinate constipation, vomiting of food, piles, dry skin, tongue coated white or red, low spirits, and occasionally dropsical affections.

During the chill in fever and ague, the spleen becomes enormously loaded with blood. Surfeited and stretched in this way again and again, it is not strange that the organ should become diseased.

Treatment. — This should be about the same as the treatment for acute and chronic inflammation of the liver.

After the active symptoms of inflammation are subdued, the warm bath may be used one or twice a week.

In the chronic form of the disease, counter-irritation with the compound tar-plaster, with mustard poultices, croton-oil, or tincture of iodine, will be particularly needed.

Among medicines, muriate of ammonia (53), has a high reputation.

To keep the bowels open, podophyllin, quinine, and nux vomica (46), have a fine effect. Iron may be given (73) when the patient is bloodless and pale.

Jaundice. — *Icterus*.

THE jaundice is a very common disease, and to be known needs only to be seen; but inasmuch as it may be but a symptom rather than a disease *per se*, it behooves one to be careful that some hidden disorder be not preying upon the system. Among the more common affections which give rise to jaundice are gastro-duodenal catarrh, frequently affecting children, obstruction of the gall-ducts by thick bile or mucus, or by gall-stones; cancer, chronic forms of liver complaints, and some forms of blood diseases.

Symptoms. — The most prominent symptoms are, yellowness of the skin and whites of the eyes, saffron-colored urine, and whitish or clay-colored stools. So full is the urine of bile, that a piece of white linen dropped into it receives a bright yellow tinge.

Besides these symptoms, there are impaired appetite, a loathing of food, the sense of a load at the pit of the stomach, sourness of stomach, sometimes sickness and vomiting, a bitter taste in the mouth, disinclination to move about, sleepiness, a dull pain in the right side, which is increased by pressure.

The entire body of a person who has died of jaundice, including bones, muscles, and membranes, are found to be full of bile, and colored yellow.

Explanation. — The bile flows into the upper bowel, a little below the stomach, through a duct or tube about as large as a goose-quill. This little tube or vessel receives the bile from a smaller tube, called the hepatic duct, and from another which goes to the gall-bladder, called the cystic duct.

These little tubes sometimes get obstructed or plugged up by sticky, thickened, or hardened bile, or by gall-stones, formed in the liver; and the bile, finding no outlet through its natural channels, is taken up by the absorbents, distributed over the system, and produces the yellowness we witness. When these ducts and the gall-bladder are filled and stretched by this thickened and hardened bile, they become tender and sore. Hence the sore feeling in the side when pressure is made.

There is another explanation of the way in which the yellowness of jaundice is produced, and it matters not whether it or the one just given be adopted. It is this: The bile is formed by the blood, and not by the liver. The office of the liver is to draw or strain off the bile from the blood. And when this organ is inflamed, or gets sluggish and will not work, the blood is not relieved of its yellow freight. The bile accumulates, and in attempting to escape through other channels, it lodges in the various tissues, particularly in the skin.

Treatment.—An infusion of thoroughwort, drunk freely every day, is a valuable remedy. The inner bark of the barberry steeped in cider, or this article compounded with others (286), (287), will be found excellent.

The diet should be plain, wholesome, and nourishing, but composed mostly of vegetable articles, particularly green vegetables and berries when they are to be had.

Cold water should be the principal drink; or drink and medicine may be combined in the shape of three drops of muriatic acid, and two drops of nitric acid, dissolved in a tumbler of water slightly sweetened. This is generally a pleasant drink, and will assist very much in the cure.

The warm bath once or twice a week, and the alkaline sponge-bath every day, with smart friction, must not be omitted.

When jaundice is caused by the passage of gall-stones through the bile-duct, there is sometimes terrible pain and suffering,—the stone, occasionally, being as large as a nutmeg, and forcing its way through a quill-sized tube. So great is the distress that the patient sometimes rolls upon the floor in agony. To alleviate this pain, large doses of opium, laudanum, or morphine, are required. A large teaspoonful of bicarbonate of soda dissolved in a tumblerful of hot water is an excellent remedy if drunk at a single draught. It relieves the acidity of the stomach, and acts as a fomentation to the internal seat of the pain. Mustard poultices, or warm fomentations, over the seat of the pain, are required. The warm bath is excellent.

The acid bath, made by mixing three parts of muriatic acid with two parts of nitric acid, and adding as much of this mixture to water as will make it about as sour as weak vinegar, is valuable in jaundice. Only a quart of water need be taken; and the solution should be applied with a sponge. It is of the right strength, if it produce a slight tingling of the skin.

Gall=Stones.—*Biliary Calculi.*

These are brownish, chocolate-colored concretions which form either in the gall-bladder itself, in the duct leading from the gall-bladder, or in the common duct which is formed by the union of the gall-duct and the hepatic duct which leads from the liver. They are solid, generally have bodies of irregular shape and size, and have facets caused by the stones being impacted against one another. Fig. 99 shows their appearance. These concretions are formed of inspissated bile and organic salts. When they settle into the ducts their natural course is downward through the duct into the bowel, where they are naturally carried off with the fæces. Their passage through these ducts is accompanied often with extreme pain and colic, the pain being the severest of any to which the system is subjected, and generally requires an opiate. When once an *attack* of



FIG. 99.

gall-stones has occurred, the patient is liable to more, as they seldom exist singly in the gall-bladder. These repeated attacks have been the subject of a great deal of thought among surgeons.

Symptoms.—An almost constant uneasiness in the right hypochondriac region, with spasms of pain, coming on suddenly, and lasting for a time with great severity, and then subsiding. The pain is caused by a stone being suddenly forced into the duct and moving forward in it, and it subsides when the stone either stops, or gets through the duct. When the stone reaches the bowels, it passes off with the stools.

The patient generally has a pale, sallow complexion, a small, feeble pulse, and often suffers from nausea and vomiting, and from restlessness and hurried breathing.

Treatment.—To reduce the spasm, give svapnia powder in full doses, or chlorodine. Also, apply mustard over the right hypochondrium and stomach, and follow it with hot fomentations with hops, or use wet cups.

If the stomach is irritable, give the neutralizing mixture until it moves the bowels. To relieve the intense pain, morphine should be administered, together with hot baths and hot cloths over the abdomen.

Sweet oil was at one time advocated as a solvent of these bodies, but experience has not proven the validity of the claim. Many practitioners, however, still insist that oil in large doses hastens the passage of the stones.

To remove the acidity on which the formation of these stones so often depends, a neutralizing preparation (338) may be given for a long time, the diet, in the mean time, being well regulated. The sponge-bath with saleratus and water, should be taken daily, followed by brisk rubbing; and free exercise in the open air should on no account be omitted.

Of late years it is customary to treat this complaint surgically, operating directly on the gall-bladder by incising it and removing the stones. If the ducts become obstructed, they too are incised and the stones dislodged, either by pushing them down into the bowel, or otherwise, as may be most convenient. The gall-bladder is either sutured to the abdominal wall, and a biliary fistula forms, discharging the bile upon the abdominal wall; or it may be drained off into a bottle; or, as has been recently advocated, the bladder may be sewn up tightly and replaced. Sometimes communication is established between the gall-bladder, or the duct, and the duodenum, by means of an ingenious device called "Murphy's Button." This button, invented by Dr. Murphy of Chicago, is intended to draw together the parts to be connected, retaining them in that position. After some days the walls slough away, and the button passes into the bowel, and is thus removed from the system. By this means

many stubborn cases of impacted gall-stone have been permanently cured.

Abscess of the gall-bladder, inflammation of the surrounding tissue, and even death are not infrequent results of the presence of these foreign bodies.

For preventing the formation of gall-stones, see the articles on Biliousness, Diet, etc.

Acute Inflammation of the Stomach. — *Gastritis.*

THIS is a rare disease. It is generally induced by irritating and corrosive substances taken into the stomach. Poisons, as arsenic, aquafortis, corrosive sublimate, and the like, are the most common causes of it. Blows, sudden stoppage of sweat, and excessive use of ardent spirits, may also excite it.

Symptoms. — It is marked by burning pain in the stomach, thirst, restlessness, anxiety, constant vomiting, prostration of strength, a quick, hard, and small pulse, incessant retching, a sunken countenance, hiccough, cold hands and feet, and a damp skin.

Treatment. — If the inflammation be excited by poison, the remedies named under antidotes for poisons must be first employed.

The poison being neutralized or thrown off, the inflammatory condition must be combatted with the remedies usual for such states. Mustard poultices to the feet, along the spine, and particularly over the pit of the stomach, will be among the first things to be employed, and should be followed by hot fomentations of stramonium leaves or hops, — both the fomentations and the poultices to be repeated as occasion may require. Dry cupping over the region of the stomach is useful. Small and repeated doses of bismuth, or $\frac{1}{8}$ -grain doses of cocaine, are generally very soothing to the stomach, and relieve the terrible vomiting.

Drinks. — Cold water, bread-water, rice-water, arrow-root gruel, infusion of slippery-elm bark, and of marshmallow. These should be taken in very small quantities, — say a teaspoonful at a time, — about twenty drops of tincture of aconite-root being added to a half tumblerful. Lumps of ice may be held in the mouth, and occasionally swallowed.

Injections. — Emetics and physic are not proper, but injections (248), (253), or simply soap-suds, will be required.

The remedies must be pursued until all tenderness has disappeared from the pit of the stomach.

While the patient is recovering, great care must be taken not to overload the stomach with food. Arrow-root, sago, and milk are among the first articles to be allowed. After these, will come gradually beef-tea, chicken-broth, soft-boiled eggs, and beef-steak, until the whole diet can be restored.

Chronic Inflammation of the Stomach.

THIS is a much more common disease than the preceding; indeed it is very common. Though it does not put life in immediate danger, it perverts the feelings of the stomach, and causes many of the symptoms of indigestion. Dyspepsia, however, is a different complaint, and not necessarily connected with inflammation.

Symptoms. — There is generally pain in the stomach, which is increased by the presence of food, and by external pressure. The pain is sometimes felt only during digestion. The fermentation of the food in the stomach generates a gas, which is frequently belched up. This is what is meant in common language by having “wind in the stomach,” and “belching wind.” The meals are frequently vomited up; the appetite is fickle, sometimes voracious, and again nearly absent; the thirst is likewise variant; the tongue is white in the centre, and red at the sides and tip, — sometimes smooth and red all over, like a slice of raw beef. The urine is scanty and high-colored.

The disease is very liable, if badly managed, to lead to ulceration of the coats of the stomach, and thence to a fatal end; for an ulcer may penetrate the walls of the stomach, and let its contents into the abdominal cavity, which would excite an immediately fatal inflammation.

Treatment. — If there be much tenderness, we may apply leeches over the stomach. With less tenderness, counter-irritation will answer, — as blisters, croton-oil, mustard poultices, the compound tar-plasters, or dry cups.

The skin of the whole surface should receive special attention. The warm or the cold bath should be used often, according to the strength of the patient. When the reaction is good, a cold compress bound upon the stomach every night, will do much to bring relief.

The diet cannot be too carefully managed. While there is considerable tenderness, the nourishment must be of the most simple and unirritating kind, — consisting of little more than the most bland nutritive drinks; and even these should be taken in small quantities at a time. Gum arabic water, rice-water, barley-water, arrow-root, gruel, tea, and toast without butter, will be amply sufficient to keep soul and body together, and will, in two or three weeks, generally starve the enemy out of his quarters. After this, a more nourishing diet may gradually be resumed. Many of the recent proprietary foods serve an admirable purpose in furnishing a large amount of nutriment in small bulk, which is easily digested. Among these may be mentioned proteinol, in teaspoonful to tablespoonful doses, liquid peptonoids, malted milk, koumiss, matzoon, etc. These latter are milk preparations with the cooling and refreshing taste of soda.

Indigestion. — Dyspepsia.

DYSPEPSIA is a disease of civilization. Savages know nothing of it. It is the costly price we pay for luxuries. All civilized nations suffer from it, more or less, but none so much as the people of the United States. It is here, in the new world, that the disease has become domesticated, and we, as a people, who have threatened to monopolize its miseries.

Few disorders inflict upon their victims greater suffering; yet it is not particularly dangerous, and it is even doubtful whether it tends very much to shorten life, unless the length of life be judged to consist in the sum of happiness enjoyed, — in which case few complaints shorten it more.

Symptoms. — These vary very much in different stages of the disease, and in different persons. In general the complaint begins with a sense of fullness, tightness, and weight in the stomach, sooner or later, after meals, and a changeable, diminished, or lost appetite. Occasionally, the appetite is craving, and when, in obedience to its promptings, a large meal is taken, there is pain in the stomach, with general distress and nervousness, and sometimes vomiting. Flatulency and acidity are common, with sour and offensive belching of wind; and very often there is a water-brash, or vomiting of a clear, glairy fluid when the stomach is empty. Dizziness is a prominent symptom. There is a great deal of what patients call an “all-gone” feeling at the pit of the stomach, — a weakness so great at that particular spot, that it is very hard to sit up straight. There is a bad taste in the mouth; the tongue is covered with a whitish fur; there is headache, heartburn, palpitation at times, high-colored urine, and tenderness, now and then, at the pit of the stomach. The bowels are generally irregular, sometimes very costive, at other times loose, when portions of food are passed off undigested.

Nervous Complication. — Such are the symptoms in a case of simple disorder of the stomach, when no other part of the system is materially involved. This is *indigestion*, well-marked, and distressing enough; but it is only a part of what is understood by a case of modern *dyspepsia*. In *this*, either the indigestion, in its course, disturbs and involves the nervous system, or the nerves become themselves disordered, and produce the indigestion. Sometimes one happens, sometimes the other, it matters not which; both are present — the affection of the stomach and of the nerves — in a case of thorough dyspepsia. To make out a full case, in its tormenting completeness, we must add to the above symptoms, great depression of spirits, amounting at times to complete hopelessness and despondency; a dread and fear of some impending evil; a lack of interest in passing events; unwillingness to see company or to move about; an irritable and fretful temper; a desire to talk of one's troubles, and nothing

else; a sallow, haggard, sunken, and sometimes wild expression of countenance; a dry, wrinkled, and harsh skin, with unrefreshing sleep, disturbed by all sorts of annoyances and difficulties, such as shipwrecks, falls down precipices, and nightmare.

The man who has all these symptoms, or any considerable portion of them, has *dyspepsia*, and is about as miserable as if all the sorrows of life were electrical currents, and were running through him continually.

Causes of Dyspepsia. — To healthy digestion, three conditions are especially necessary, — that the food should be well chewed and mixed with saliva before it is swallowed; that the stomach should pour out and mix with it the right amount of healthy gastric juice; and that it should be well *churned* while in the stomach.

It is well known that the first of these conditions, a thorough chewing of food, is rare in this country. We eat too fast; we do not masticate our food; we *bolt* it whole.

This is the first cause of dyspepsia, and it is the fruitful mother of causes. It furnishes the occasion for eating too much; for when the food is swallowed with such rapidity, the stomach is taken by surprise, as it were; it cannot secrete gastric juice fast enough to be diffused through the fast-growing mass; and the appetite does not decline until a great deal too much is taken. The coats of the stomach, being stretched unnaturally, do not pour out the gastric juice at the right time, or as much of it as is wanted, and what there is, is altered in quality.

Moreover, the stomach being overburdened, cannot turn over and churn its contents properly.

To fast eating, we may add, high-seasoned dishes, too stimulating for the stomach; eating between meals, and at unseasonable hours, — particularly at bed-time; excessive use of strong drinks and tobacco; habitually sitting up late at night; inactive habits of body; and excessive use of the mind.

No causes of dyspepsia are more active than those which disturb and fret the mind. It is surprising how suddenly any mental agitation will put an end to the appetite, and suspend digestion. And when these mental disturbances are protracted, when care becomes a daily and hourly companion, dyspepsia is almost sure to show itself. Considering the numerous causes of unpleasant mental excitement which we have in the politics, the business, the ambition, the family jars, etc., of this country, it is a wonder that dyspepsia is not even more prevalent. It is hard for the sensitive to escape.

These causes may seem too simple to be the frequent origin of so much misery, and yet whole volumes might be written on this one subject. One cannot too forcibly nor too frequently remind the reader of the importance of these simple and brief remarks. No treatment will avail if they are not heeded.

Urinary Deposits. — Before speaking of the treatment of dyspepsia, it will be proper to take notice of certain deposits in the urine, to which persons suffering from this complaint are liable, and the discovery of which will, in many cases, indicate the treatment.

Many dyspeptics have acid urine, which is loaded with *crystals of oxalate of lime*. These persons are much depressed in spirit, and look upon the dark side of everything. They are painfully disturbed by small annoyances, are irritable in temper, incapable of exerting themselves, look with dread upon the future, and generally have the dark and dingy look of the face which indicates functional derangement of the liver.

The most of these crystals are octahedral in form, and in the field of a good microscope are beautiful objects for inspection. (Figs. 100 and 101.) To obtain them, take a portion of urine passed in the morning (*urina sanguinis*), and let it stand till a deposit takes place. Pour off the upper portion of the urine; put a part of the remainder in a watch-glass, and gently heat it over a lamp. The heat will cause a deposit of the crystals.



FIG. 100.



FIG. 101.



FIG. 102.

The oxalate of lime is frequently found in urine, the crystals having the form of dumbbells. When examined by polarized light, they appear beautifully colored and striated. (Fig. 102.)

The urate of ammonia, and uric acid gravel, are likewise found in large quantities in the urine of many dyspeptics. Some are exhausted by them, and reduced almost to skeletons, and to a wretched state of health, — having boils, eruptions, etc.

To find the urates, put a little of the urine containing the deposit in a test-tube, and warm it gently over a lamp. *If the deposit readily dissolve*, it is probably urate of ammonia (Figs. 103 and 104), and may then be examined under the microscope, to make the matter sure.

To find uric or lithic acid, let morning urine stand until a solid deposit has sunk to the bottom; then pour off the liquid, and place some of the solid portion upon a glass, and examine it with a microscope, and if this acid be present, its peculiar crystalline forms (Fig. 105) will be discovered, either alone, or mixed with urate of ammonia.

In those cases in which there is a great prostration of the *nervous* system, with a loss of sexual power, bad feelings in the head, perhaps pain and weakness across the loins, and a tendency to consumption,



FIG. 103.



FIG. 104.

we may suspect the presence of the triple phosphates in the urine. Phosphorus is one of the elements of the brain and nerves, and when



FIG. 105.

there is a constant drain of this element through the kidneys, the nervous system is gradually exhausted. To find the triple phosphates, put some morning urine in a glass vessel, and let it stand till a sediment has gone to the bottom. Put some of the sediment in a test-tube, and warm it gently over a lamp. If the warmth do *not* dissolve the deposit, add to it a little acetic acid; *if the deposit dissolve in the acetic acid, it probably consists of earthy phosphates*. This is then to be examined under the microscope to ascertain whether it is the phosphate of lime, the triple phosphate, or a mixture of both.

Fig. 106 shows us the prismatic crystals of the triple phosphate. In a few rare cases, these are penniform (Fig. 107). Fig. 108 gives us another specimen of the crystals of the triple phosphates, as they



FIG. 106.



FIG. 107.



FIG. 108.

appear under the microscope, mixed with amorphous particles of phosphate of lime. If an excess of ammonia be added to the urine, the crystals become star-like and foliaceous, as in Fig. 109.

Treatment of Dyspepsia. — As there are few complaints which distress the patient more than dyspepsia, so there are few which give the physician more trouble. Generally our art has failed upon it because too much has been required of us. We have not merely been asked to cure the disease, but to do it while the patient continues the indulgence of his appetite, or his excessive application to business or study. It has been expected of us, that with medicine we should contravene the laws of nature, and restore health while the causes of the disease are in full activity.



FIG. 109.

This complaint is often brought on by not keeping the bowels open. To cure it, therefore, one of the first things to be done is to remove costiveness and regulate the bowels.

One of the very best articles I know of to remove constipation is Mettauer's Aperient. I have placed it in the department of Pharmacy; it ought to be in the United States Dispensatory. Taken immediately after meals, in doses of a teaspoonful, it corrects acidity of the stomach, it gently opens the bowels, and when its action is over, will be found to have diminished the costiveness, rather than increased it, as most kinds of physic do. It is excellent in the bilious forms of dyspepsia, — acting finely upon the liver, — particularly if a few drops of aqua regia in water be taken before meals, — the aperient being taken after.

If *piles* exist, this mixture will be objectionable on account of the aloes, and the fluid neutralizing extract may take its place. Sweet tincture of rhubarb and soda (37), is sometimes preferable to the aperient.

Several other preparations (38), (289), (39), (290), will be found useful to remove costiveness and debility of the stomach.

For acidity, besides the remedies already mentioned, prepared charcoal may be used, in teaspoonful doses, or carbonate of magnesia, or fluid magnesia, or trisnitrate of bismuth. A good remedy is pulverized guaiacum, rhubarb, prepared charcoal, and carbonate of magnesia, equal parts; also (28), (37), (38), (42). If crystals of oxalate of lime be found in the urine, give a few drops of aqua regia, in water, three times a day.

Hygienic Treatment. — The diet must be managed with great prudence. Food must be taken in such quantities only as the stomach can digest, however small that quantity may be; and it must be taken slowly, and well chewed. No article should be touched, or thought of, which disagrees with the stomach. Costiveness may frequently be entirely removed by eating no bread except that made from unbolted wheat-flour, commonly called Graham bread (that made from Franklin Mills flour), or by making one of the three daily meals of

boiled cracked wheat, with milk or molasses. If the triple phosphates be found in the urine, there is a special reason why the unbolted flour, or the cracked wheat should be used. The wheat-grain abounds in phosphorus, the largest portion of which is in the bran, and this is much needed when the kidneys are robbing the brain of its phosphoric element.

Not too much Brain-work.—It is important that the brain and nervous system should be relieved of the burden of too much work, and that the thoughts should be turned into the most agreeable channels. If the patient would get well, the disinclination to move about and see company *must* be resisted. In many cases, dyspeptics are like sea-sick persons,—feeling as though they would rather go overboard than move. In such instances, friends must not be harsh with them, and frown upon their listlessness as if it were a fault; but rather treat them affectionately, and beguile them out by all sorts of pleasing enticements. Exercise *must* be had, every day, and be connected, if possible, with an object, so that it may be performed cheerfully. It is important *to engage the mind in the exercise*; and for this purpose, some contested game is very useful, as playing at billiards, rolling nine-pins, pitching quoits, or, where the strength will permit, playing ball or riding the bicycle.

Cheerfulness.—Nothing does more to drive away dyspepsia than a cheerful, lively, and even *mirthful* state of mind. All the nervous influences sent from the brain to the stomach should be of the most agreeable kind. Some people think it vulgar to laugh. Let such stand with long faces in life's shadows, if they choose. As a general rule, the best men and women laugh the most. Good, round, hearty, side-shaking laughter, is health for *everybody*; for the dyspeptic, *it is life*.

Dyspeptics who have a taste for it, and can endure the expense, should travel. A voyage to Europe, and a year spent in seeing the wonders of the old world, will generally cure the most stubborn case of indigestion. This, however, depends upon circumstances. For those having the finer organizations and the higher natures, extensive travelling is sometimes indispensable. The narrow circle of thoughts, associations and things in their own neighborhood, do not fill the compass of their wants; their many-sided faculties need to be drawn on by the large variety to be found only in travel. Their large and impressible natures want to be filled full in order to drive out disease, and it takes a world, or a considerable part of it, to fill them. The dyspepsia of such natures is not comprehended by the multitude, and even physicians are often amazed that their narrow prescriptions do not reach it.

Heartburn. — Cardialgia.

THIS is a gnawing and burning pain in the stomach, attended by disturbed appetite. It is generally caused by great acidity of the

stomach, and is a symptom of dyspepsia, and often afflicts pregnant women. Whenever too much food is taken, it is liable to ferment, and become extremely sour, — causing heartburn. In such cases, vomiting often occurs; and what is thrown up is sour, and sometimes bitter.

Treatment. — Immediate temporary relief may be obtained by swallowing a teaspoonful of soda, magnesia, or chalk, in a tumbler of cold or warm water. Fluid magnesia, or lime-water, will answer the same purpose. If there is wind in the stomach, as well as acidity, a teaspoonful of the aromatic spirit of ammonia, or (135), will often still the uneasiness in a moment.

To cure the complaint, the stomach must be strengthened by the remedies directed for dyspepsia.

Spasm or Cramp in the Stomach. — *Gastrodynia.*

THOUGH generally of shorter duration, this is more violent than heartburn. It is attended by a sense of fullness, by anxiety, and by great restlessness. In females, hysterical symptoms are often coupled with it. Great quantities of air or gas are generally expelled, and the pain shoots through to the back and shoulders.

Treatment. — A strong purgative injection (248) will often bring immediate relief. The sweet tincture of rhubarb and soda (37), with a few drops of tincture of cayenne mixed with it, will often bring speedy relief. So will a mustard poultice laid upon the stomach. The mustard poultice is a remedy of great excellence, in many cases. It deserves to be called the poor man's friend.

Water-Brash. — *Pyrosis.*

THIS consists in a discharge from the stomach, generally in the morning, of a thin, glairy, watery fluid, sometimes insipid, at other times sweetish, and at still others sour. A burning heat or pain in the stomach attends, and seems to be the immediate cause of the discharge. The discharge appears to be the natural mucus of the stomach, which is poured out in large quantities in consequence of a kind of catarrh of its mucous lining. The amount thrown up varies from a spoonful to a pint or more.

The complaint is caused by a poor, innutritious diet, or by whatever causes the blood to become thin and watery.

Treatment. — Ten or fifteen drops of water of ammonia, in half a tumbler of water, will quiet the distress, and check the discharge. The most effectual remedy I am acquainted with for breaking up the discharge, is the trisnitrate of bismuth, taken at meal-times, in from twenty to thirty-grain doses, three times a day. The compound powder of kino is a valuable remedy. The compound tincture of senna and the tincture of balsam of tolu, in equal parts, and administered

in tablespoonful doses, are sometimes useful. The tincture of nuxvomica is a good remedy.

To restore the blood, some of the various preparations of iron (74), (80), (73), (316), will be required.

The diet should consist of easily-digested, nutritious food, — as soups, broths, fresh meat, and unbolted wheat-bread.

Vomiting.

THIS occurs under a great variety of circumstances. It may be induced by acidity of the stomach, by irritability of the stomach, by distress of mind, by injury of the brain, by offensive odors, and by all organic diseases of the stomach.

Treatment. — Generally, it is cured by treating the disease which induces it. But in many cases it persists very obstinately, and may become the chief thing to be attended to. In such cases, it may require a careful investigation of the cause to check it. But generally some aromatic, as ginger, spearmint, peppermint, or spice-tea, will put an end to it. Some cordial or stimulant, as brandy, champagne, tincture of ginger, paregoric, elixir solutis, or cherry brandy, will answer well. Strong coffee, without sugar or milk, will, in some cases, act like a charm. If it is dependent on acidity, the remedies are given under “dyspepsia.” If caused by irritability of stomach, a pill of extract of belladonna and ipecac (339) will do well.

While vomiting, the patient should lie still in bed, and in bad cases, a mustard poultice should be placed upon the stomach.

The vomiting of children may sometimes be stopped by wetting a piece of cloth with laudanum, and laying it upon the pit of the stomach.

Seasickness.

THIS is the great terror of persons who, for the first time, cross the ocean. It is said that dark-complexioned persons suffer more from it than others.

If it cannot be entirely prevented, it may be mitigated by lying flat upon the back. To lie on deck, in the open air, is much better than lying in the close air of the cabin or stateroom. A wineglass of brandy, or iced champagne, sipped now and then, will relieve the sickness very much. For a child, it is sometimes sufficient to wet a cloth with mustard, and lay it upon the pit of the stomach. Creosote, one drop at a dose, made into a pill, is excellent. Ten drops of hartshorn, in half a tumbler of water, is good for some. Bromide of soda in large doses, daily, prevents it, or bromo-cafein when it first comes on. Cocaine in one-eighth grain doses every twenty minutes is usually very helpful. A spinal ice-bag placed

opposite the stomach while the sufferer lies upon the back will do more toward curing sea-sickness than any other single remedy. These bags are about eight inches long, made of thin rubber, and are to be filled with small pieces of cracked ice. When the ice melts refill the bag.

Milk Sickness.

THIS disease prevails in the West, chiefly in the neighborhood of level, heavily-timbered, rather wet oak-land.

The cattle, horses, and sheep, which range in this land, are frequently attacked by a disease which the people call the *trembles*. It is supposed to be produced by eating some plant growing upon those lands, as cattle which feed in the neighboring regions are free from it until they find their way into these low grounds. It has been suggested that the offending plant may be the *poison ivy* (*rhus toxicodendron*). Be this as it may, the calves, soon after sucking cows which have run in these grounds, are seized with trembling, and frequently die of the disease. Dogs which lap the milk are affected in a similar manner. Children drinking it leave the table and vomit. Upon grown persons the effects are more severe, but not so sudden. The eating of the beef, mutton, or veal, of affected animals, brings on the same disease.

Symptoms.—The disease sets in with sickness at the stomach, which is preceded by general debility, more particularly of the legs. There is nausea, vomiting, and the breath is so offensive and peculiar that those acquainted with the complaint immediately recognize it from this smell.

These existing for weeks, constitute, in some cases, the whole of the symptoms. In other cases they are more severe, being attended by chills and flushes, great oppression about the heart, anxiety, deep breathing, heat in the stomach compared to fire and boiling water, violent retching and vomiting, alarming beatings of the heart, and throbbings of the large vessels, and cold extremities, — producing, all together, extreme distress.

In most cases, the vomiting returns every hour or two, attended by great burning at the pit of the stomach, the substance thrown up having a peculiar bluish-green color, and a sour smell. As soon as this discharge takes place, the patient falls back upon the pillow, and lies easy until another turn comes round. The tongue is covered with a whitish coat, the bowels are obstinately costive, and the pulse is small and quick.

Treatment. — It is believed that the neutralizing mixture, given in tablespoonful doses every time the nausea and burning sensation are felt, is the most effectual remedy yet used. It relieves the acidity, and seems well adapted to allay the irritation. Some antibilious physic (40) to move the bowels should also be given.

Besides these remedies, a mustard poultice should be put upon the stomach, and hot bricks to the feet, and the patient be kept still for some hours. The diet should be very mild, — only toast-water, rice-water, or thin gruel.

Acute Inflammation of the Peritoneum.—*Peritonitis.*

THIS disease affects the extensive membrane which lines the whole inside of the belly, an extension of which forms the omentum or apron. It is an inflammation to which women are much exposed after confinement, and is known, in such cases, as child-bed or puerperal fever. It is common among men also, and is a grave disease.

The accepted notions of no disease have undergone so much of a revolution of late years as those relating to peritonitis. It was formerly considered to be generally of spontaneous or idiopathic origin, whereas now we know it to be the outcome of some one of several diseases, but lately understood, as for instance, appendicitis, septicaemia or blood-poisoning, inflammation of the fallopian tubes and ovaries, tuberculosis, abscess of gall-bladder, strangulated hernia, etc.

Symptoms. — Like other forms of fever and inflammation, it is preceded by chills, with increased heat of surface, thirst, full, strong, and frequent pulse, flushed face, and red eyes, dry tongue with red edges, dry skin, restlessness, short, quick breathing, nausea and vomiting.

The pain is increased by the patient sitting or standing up, — the bowels being thus pressed against the inflamed membrane. Lying upon either side is painful for the same reason. To lie flat upon the back, with the feet drawn up, is the only endurable position. The patient lies *still*, for all movements give pain.

The pain in this disease is generally sharp, cutting, and pricking, but is not always equally intense. It is aggravated by the passage of wind along the bowel, by which the inflamed membrane is slightly stretched.

When the disease is advancing towards a fatal termination, the belly becomes greatly swollen and tense, — having to the hand a peculiarly tight, drum-head feeling; the pulse is rapid and feeble; the countenance is full of anxiety, and is pinched and ghastly; and a cold sweat breaks out.

Treatment.—No time should be lost in calling a competent surgeon to see a case with symptoms of peritonitis, for as before pointed out there are comparatively few cases but what depend upon some disease which will require operating upon the abdomen. It is of the utmost importance to distinguish local inflammation within the belly wall so that no time will be lost when it is so important that an early operation should be performed if needed.

The two main indications in the treatment of peritonitis after having discovered and treated the causes, are the thorough draining of the bowels of their watery secretions by some gentle saline which will not stir them up; and secondly to maintain them in a state of quiet and rest. The first is met by magnesia in the form of the solution of the citrate, say one-half bottle every four hours till copious watery movements occur. This drains the glands and causes a flow of the poisonous effete material into the bowels and rids the system of so much poison. The second indication is met by opium in some of its many forms. It is often, however, a serious problem for even the physician to decide, and should only be undertaken with his advice.

The drinks should be lemonade, soda-water, tamarind-water, currant-jelly dissolved in water, and preparations (298) and (299). Indian-meal gruel, toast-water, barley-gruel, and the like, are the only allowable diet.

Chronic Inflammation of the Peritoneum.

WHEN the acute inflammation of the peritoneal membrane is not successfully treated, it may run on for a time, and then subside into a lower grade of inflammation, called *chronic*, and in this state remain for an indefinite time. But it often arises independently of the acute disease, and attacks persons of both sexes, and of all classes and ages. Scrofulous children have it, and, wasting away under it to mere skeletons, are said to have *consumption of the bowels*.

Symptoms. — These are sometimes very obscure, and the advances of the disease stealthy. At first there may be only a little soreness of the belly, so slight as not to be noticed except after hard work, or upon some wrenching motion. Generally, there is a sense of fullness and tension of the belly, although it may not be increased in size. After a time, it enlarges a little, and its tension or tightness increases, especially towards evening. By pressing carefully with the hand, a deep-feeling tension may be detected, giving to the hand a sensation as of a tight bandage underneath, with the skin and integuments sliding loosely over it. If water has been poured out into the abdominal cavity, its fluctuation may be frequently detected by pressing upon one side of the belly with the palm of one hand, and striking the other side with the ends of the fingers.

As the disease goes on, the features become sharp and contracted, and the countenance grows pale and sallow. Costiveness comes on, sometimes chills and fever, with debility, loss of flesh, cough, difficult breathing, hectic, and swelling of the legs.

Treatment. — Costiveness, if present, may be relieved by Mettauer's aperient, or the neutralizing mixture, assisted by coarse bread, and boiled cracked wheat.

Daily bathing is especially necessary, particularly the alkaline sponge bath, with vigorous friction over the bowels. The warm bath once or twice a week will be useful. In some cases, a wet towel laid upon the bowels over night, and well covered by flannels, will afford relief; or the compound tar-plaster may occasionally be used.

If there be dropsy of the belly, iodide of potassium (138) should be taken freely, and the skin made sore over the inflamed part, by tincture of iodine, well rubbed in, once a day.

If the patient be pale and bloodless, give iron, quinine, etc. (74) (75), and let the diet be nourishing; and if nervous symptoms be connected with the debility and paleness, add some nerve-tonic (93), (81), (316). When the disease is known to be the outcome of a deposit of tubercles on the peritoneum, it is now customary to open the abdomen under antiseptic methods and wash out the cavity. The effect of a mild salt-solution and the light and air oftentimes arrests the disease.

Acute Inflammation of the Bowels. — *Enteritis*.

By inflammation of the bowels is generally understood an inflamed condition of the *mucous membrane which lines them*; but this, most commonly, is only a part of the disease; it involves more or less, besides this mucous lining, the whole substance of the bowel. After an inflammation has existed some time, and even, in severe cases, at the start, certain poisonous substances are formed as the result of germ invasion, called *toxines*. These are genuine poisons, and often spread rapidly through the walls of the bowels by means of the numerous lymphatic vessels to the peritoneum itself, — that delicate membrane which we have seen covers all organs within the abdominal cavity. When this membrane once becomes poisoned, an acute inflammation sets up, which masks all other symptoms, and is indeed a veritable blood-poison. We have then to deal with peritonitis.

Symptoms. — The disease begins with a chill, and with uneasiness and slight griping pains, which increase in severity until they are intense and burning. Pressure aggravates the pain, which is most intense about the navel, but extends more or less over the whole bowels.

From the beginning there is sickness at the stomach, and sometimes vomiting; there is loss of strength, costiveness, great anxiety, thirst, heat and fever, dry, furred, and red tongue, and but little urine, with pain in passing it. The matters passed from the bowels are dark and fetid; and the whole belly is tender and sore to the touch. The pulse is quick, hard, and small.

The stomach will be but little affected, comparatively, when the disease is at some distance from it in the lower portion of the bowels. Indeed, the nearness of the inflammation to the stomach, or its remoteness from it, may be judged pretty correctly by the degree of

disturbance in that organ. The length of time after drink and medicines are swallowed, before they are vomited up, is a pretty good measure, likewise of the distance of the disease from the stomach.

How to Discriminate. — This disease is liable to be confounded with colic, and with inflammation of the peritoneum. It is important to distinguish it from colic, particularly, because the treatment for that would aggravate this. In this disease the pain is increased by pressure; in colic, it is not, but is rather relieved. In enteritis, the pain remits, but never ceases wholly, as it does in colic. In enteritis, the knees are drawn up, and the breathing is short; in colic it sometimes gives relief to stretch the feet down, and the breathing is not altered.

To distinguish it from inflammation of the peritoneum, take notice that diarrhœa is much more common than in this latter complaint, while the pulse is not as quick, nor the pain as severe.

Treatment. — This should be very much the same as that recommended for peritonitis. Perhaps in both diseases it might be well to begin with covering the belly all over with leeches.

The tincture of *veratrum viride*, in full doses, so as to keep up a free perspiration, cold compresses, mustard poultices, hot fomentations, poultices, blisters, soothing and quieting injections, and demulcent drinks, as slippery elm, marshmallow, flax-seed, etc., if judiciously applied, will do about all that we have it in our power to accomplish.

In this disease it is well to inquire if the patient has a hernia, for if so, it is liable to become strangulated without his knowledge. A strangulation of the gut may be the *cause* of the disease. When this happens, the complaint is very unmanageable. The bowel may possibly, in such case, be disentangled by applying a *large* dry cup; or, what is better, a number of small ones; but the tenderness of the belly makes the use of this remedy difficult. Here again magnesia may be of signal benefit unless the movements are already too copious and exhausting, in which case disinfectants or astringents must be resorted to. The possibility of tuberculosis must not be ignored.

Chronic Inflammation of the Bowels.

LIKE other chronic inflammations, this may follow the acute form, but it also results from various other causes, as unripe fruit, taking cold, drastic physic, and improper treatment of other diseases.

Symptoms. — Red end and borders of the tongue, dull pain in belly, increased by pressure and rough motion, abdomen either swelled or flat, skin dry and husky, feet and hands cold, small frequent pulse, thirst, loss of flesh, low spirits, urine scanty and high-colored, and dirty, slimy discharges from the bowels, from one to four times a day.

Treatment. — To begin with, blisters, or croton-oil, or mustard

poultices, or dry cups, if the tenderness is not great, or leeches if it is. If the bowels are hot and feverish, bind a cold compress upon the belly over night, covering it well with flannel. The warm bath should be used twice a week. Salol, ten grains every three hours, bismuth and opium, are in this case very valuable. Washing out the lower bowel with hot water by means of a syringe often soothes and heals.

The diet must be of the most simple, unirritating kind, beginning with a solution of gum-arabic, rice-water, barley-water, arrow-root or sago-gruel, and gradually rising, as the symptoms improve, to beef-tea, mutton and chicken broth, tender beefsteak, etc.

When the strength will permit, gentle exercise must be taken in the open air, but not on horseback, or in hard, jolting carriages.

As soon as the inflammation is subdued, some mild laxative (35) may be given, in connection with an infusion of wild-cherry bark, geranium, and Solomon's seal, equal parts.

Appendicitis.

THIS is one of the so-called modern diseases,—not that it has not existed for a long time, but that not till lately has it been recognized as a distinct ailment. Formerly it fell under the general category of peritonitis or inflammation of the bowels. American physicians have done more toward discovering its characteristics than others. It is an inflammation of the appendix vermiformis, which is situated at the end of the large bowel, in the right flank, close to the junction of the colon with the small bowel (see manikin). This organ is a small, round, tail-like body, about the size of a slate-pencil, and averages some three inches in length. It is hollow, lined with mucous membrane, and covered like the bowel proper with a peritoneal membrane. It secretes mucus. Its use is as yet unknown, being thought by many to be a rudimentary organ like the uvula, without function, and possibly analogous to the herbivorous stomach. Whenever small seeds enter the cavity of this organ (which is in reality a rare occurrence) or whenever, from any cause, a catarrhal inflammation is developed in it, the secretion increases, and being confined, aggravates the trouble. This catarrhal inflammation is generally mild and the trouble often subsides either for good or to start up again sooner or later.

The inflammation may, however, become *purulent*, the germs penetrating the walls of the appendix and causing a general inflammation of the peritoneal coat of the bowel. In these cases nature fights hard to resist the invasion of the germ and throws out a large amount of lymph and serum, which, when it hardens, often acts as a barrier to the further progress of the peritonitis which has begun about the appendix. These cases are characterized by a hard lump in the appendicular region, the inside of which contains pus as a rule, which

has escaped from the bursting appendix. Cases of this class are extremely dangerous and require the immediate aid of a surgeon, as they are bound to give trouble sooner or later, even if the first attack does not prove fatal.

There is still a third class of cases, called fulminating, because from the very first they seem to be purulent, and spread rapidly into a general peritonitis, death occurring within a few days from the appearance of the first symptoms. These cases are the most hopeless of all, and must be operated on without the slightest delay, since immediate evacuation of the pus, before a general infection of the abdominal cavity supervenes, is the only possible hope of saving the patient.

Symptoms. — The disease, as generally observed, begins with languor and pain in the abdomen, with special soreness on the right side, oftentimes nausea and vomiting, constipation, a slight rise of temperature, and headache. As the disease progresses the tenderness amounts to pain, a bunch may be felt by the medical attendant: the temperature gets a little higher and symptoms of pus formation set in. The case may hang in this initial stage (up to the point of pus formation) for several days and finally subside, it being a more or less catarrhal inflammation; but when pus has once formed the patient cannot escape without an operation for the removal of the offending body. Many surgeons at the present day even take the ground that every inflamed appendix should be removed.

Treatment. — The medical treatment consists in giving magnesia in form of the solution of the citrate, with a light diet, and keeping the patient in bed. Poultices may be of some benefit. Opium should not be used unless pain is extreme.

The operation for appendicitis, when performed between the attacks, is a comparatively safe one in competent hands; but it becomes a very grave one if pus forms rapidly and invades the general abdominal cavity. Between these two classes of cases there are all grades of difficulty and danger.

Cancer of Intestine.

THIS disease is much less frequent than cancer of the stomach, constituting about five per cent of all cases of cancer. It occurs usually about the middle period of life. We are in absolute ignorance of its causation in this region. The rectum is the most favorable part of the bowel for its development, the large intestine next, and then the small intestine.

Symptoms. — Intestinal hemorrhage, pain; emaciation, irregular movements of the bowels, pain in the sacral region, radiating to the genitals and down the course of the sciatic nerves (in case of rectal cancer), are among some of the indefinite symptoms of cancer of the

bowels. When well marked and when located favorably, a tumor may be discovered by palpation, but often this cannot be felt and the masses which at first seem to indicate cancer may afterward prove to be merely fæcal accumulations. When the mass can be felt in the rectum the diagnosis becomes clearer. The prognosis of the disease is extremely unfavorable.

Treatment. — As for treatment, only in rare cases is much aid ever procured. The formation of an artificial anus in the left flank may avert for a while the final end. The injection of the new cancer-serum is still of doubtful success.

Opiates to relieve pain, nourishing food frequently repeated, and the use of antiseptic enemas, are, for the most part, the chief measures that afford relief.

Intestinal Obstruction.

THIS is a mechanical interference with the movements of the fæces, and is caused either by intussusception or invagination, constriction, twists, stricture or hernia. These conditions are frequently produced by irregular movements of the bowels as a whole, and by irregular movements in various parts of the same, there being an increased peristalsis in one part and constipation in an adjacent part. Many cases of intussusception occur at the ileo-cæcal valve, the small bowel entering the large bowel and being driven downward. The circulation of the bowels is naturally interfered with, and intense congestion occurs, with swelling and final obstruction of the calibre of the gut. Pain becomes paroxysmal and peritonitis ensues. Pain increases, with vomiting and the discharge of mucoid stools; finally the patient dies of exhaustion.

Constriction of the bowel forms the larger proportion of cases and is not infrequently caused by fibrous bands which are the result of inflammation. Strangulation may be produced by a loop being held down by such bands or by being twisted about it. Intestinal obstruction, ulceration, and even perforation are common results.

A *twist* or *volvulus* is also a cause of obstruction, though less common than the two causes just mentioned, and occurs generally near the sigmoid flexure.

Stricture of the bowel usually occurs at the sigmoid flexure, or in the rectum, and is not usually complete, some small amount of fæcal matter still escaping. Tumors, like cancer, not infrequently cause stricture by their compression.

Functional obstruction occurs chiefly in hysterical females, but also in disease of the brain and spinal cord, as well as from peritonitis and blows on the abdomen. It is the result of a paralysis of the bowel.

Impaction of fæces is still another frequent cause of obstruction. The contents of the bowels, especially in the rectum, become hard,

blocking the passage till quite a perceptible bunch may be felt externally. The channel is not always blocked completely. Gall-stones may become impacted near the ileo-cæcal valve in their passage downward, and form the starting point of the fæcal accumulation.

These various causes produce either acute or chronic obstruction.

Symptoms. — In the acute variety, pain, vomiting and constipation are the prominent symptoms. There are at first some digestional disturbances, with moderate pain. Afterwards the pain becomes severe, even intense, and is usually located near the seat of the obstruction. It is at first colicky and intermittent, but finally becomes continuous and severe over the whole abdomen. Vomiting sets in, first of food, then later of bile, and finally stercoraceous if the obstruction becomes complete. Vomiting occurs whether the obstruction is in the large or small bowel. Before the close of the scene this vomiting assumes a ricewater-like character, perhaps attended with hiccough.

There is an absence of the passage of wind, although at first some small amount of fæcal matter may pass. In intussusception there are usually bloody discharges in addition to constipation. The abdomen of course soon becomes tympanitic or swollen, and sounds of water and gas may be heard very distinctly.

The general symptoms are those of a very grave disease, — restlessness, cold extremities, pinched features, and cold, clammy skin. The pulse is small, the temperature generally subnormal, tongue dry, and thirst very pronounced.

In the event of *chronic obstruction*, all these symptoms appear very much more gradually. Pain is less severe, vomiting often absent till the obstruction becomes complete. The fæcal matter may often be several feet long before the obstruction becomes severe. Long-standing constipation which does not respond to proper laxatives should arouse suspicion. The stools themselves are often ribbon-like in shape and very small, not infrequently resembling the fæces of sheep.

The prognosis of obstruction of the bowels is usually very grave, and the duration of life varies from a few hours to ten or twelve days. The higher up the obstruction, the worse the prognosis. Simple fæcal impaction perhaps offers the most hope; next those cases amenable to surgical interference.

Treatment. — Opium to relieve pain and to stop the exaggerated peristaltic movement in parts of the bowel above the obstruction is surely indicated; it also relieves the vomiting. Continued, large enemas of suds and oil, and even the addition of turpentine, should be resorted to at once as soon as the trouble has been made out. These are best given with the hips elevated, and should consist of four to six quarts of water; they are to be given slowly and without much force. Oftentimes an anæsthetic is needed.

If the obstruction is from fæcal impaction, small, repeated doses

of some saline should be used ; say two ounces of the solution of the citrate of magnesia every two hours. Castor-oil in teaspoonful doses hourly till movement occurs is also good. But if the obstruction is from intussusception, twist, stricture, etc., all laxatives must be strictly interdicted. Finally, these simple means failing and the case be suspected to be due to impaction by foreign bodies, fibrous bands, etc., the abdomen must be opened and the seat of the obstruction found and if possible removed. The operation in this class of cases is not attended with a great percentage of recoveries, and yet the fatal termination is much surer if left alone ; in many cases it is brilliantly successful.

External methods of treatment by hot fomentations of turpentine, and even of massage, often add greatly to a favorable termination.

The diet must be very light and nutritious, and in case of vomiting must be given by the rectum. After the obstruction has been relieved, one must be very careful about the diet and see that the bowels are open daily.

Wind Colic. — Flatulent Colic. — *Interalgia*.

THIS is a severe and distressing pain in the bowels, — sometimes a stoppage, and a swelling about the pit of the stomach and the navel. What children call *belly-ache* is a mild form of it. The wind passing from one portion of the bowel to another causes a rumbling noise. The pain is not increased by pressure ; and this distinguishes it from the pain of inflammation. It moves about, too, from place to place, and is much relieved by the escape of wind up or down.

The complaint may be caused by a weakness in the digestive organs, by eating indigestible food or unripe fruit, by costiveness, and by taking cold. Some persons always have the colic excited by eating certain kinds of fruit.

Treatment.—When the complaint is caused by an indigestible substance taken into the stomach, the offending matter should be thrown off by an emetic as soon as possible. If this does not bring relief, let it be followed by a dose of salts, salts and senna, compound infusion of senna, elixir salutis, elixir pro., or sweet tincture of rhubarb. If there is no sickness of the stomach, a little essence of peppermint or spearmint in hot water, or brandy, gin, or whisky, in hot water, may prove sufficient to expel the wind, and relieve the pain. Ginger and hot water does well with some. If there be costiveness, and the pain is obstinate, let the bowels be unloaded by a stimulating injection (248), (249), (250). Inject one dram of ether in a little starch-water into the bowels, and relief will often be instant. It can be repeated every half-hour. The injection of a table-spoonful of turpentine in suds can also be tried and repeated every two hours.

Air-Swellings. — *Tympanites*.

It is quite common for persons in delicate health — particularly females — to have their stomach and bowels swell up, sometimes slowly, sometimes suddenly, so that they cannot bring their clothes together. They do not know what to make of it; it sometimes alarms them; and they ask their medical adviser what it means.

These swellings may occur from an accumulation of air within the bowels, and also within the abdominal cavity. This latter gives the belly a peculiarly hard feel, like the head of a drum, and when it is pressed upon with the finger no indentation remains. It usually is the result of a weakened sympathetic nervous system, brought about by some one of the many abdominal diseases.

Treatment. — If the air be in the intestinal tube, a stimulating injection may bring away the wind. It may be composed of one pint of infusion of peppermint, one gill of tincture of prickly-ash berries, half a gill of tincture of castor, and a teaspoonful of ginger. The bowels of the patient should be rubbed for a long time; and in all forms of the complaint, it would be well to do this every day. Sometimes the wind may be drawn off by inserting into the rectum a long rubber tube. Treatment often resolves itself into a cure of some existing uterine or ovarian disease and the various phases of peritonitis, in which latter case there is fever and other well marked symptoms.

The best constitutional remedies are tonics, — iron, quinine, mineral acids, and bitters, (48), (55), (59), (60), (62), (63), (64), (71), (73).

Exercise in the open air, and a careful regulation of the diet, will do much towards removing these troubles. Costiveness must be carefully guarded against.

Bilious Colic.

THIS is a dangerous disease. There is pain of a griping, twisting, tearing kind, — what the ancients called *atrocious pain*. It is chiefly about the navel, but sometimes tortures the whole belly. It comes and goes in paroxysms. Sometimes the abdomen is drawn in, at other times it is swelled out, and stretched like a drum-head. At first the pain is relieved by pressure; after a time the belly is tender to the touch. There is thirst and heat, and a discharge of bilious matter from the stomach. In the worst cases, the pulse is small, the face pale, the features shrunk, and the whole body covered with cold sweat. While the head is hot the feet are cold. In advanced stages of the disease, the action of the bowels is sometimes reversed, and the fecal matter forced up through the mouth, owing to impaction of fæces or other obstructions of the bowel.

Causes. — Costiveness, irritating substances in the bowels, thick, vitiated bile, long exposure to cold, torpidity of the liver and skin, great unnatural heat, with dampness, obstructed gall-duct, etc.

These attacks are usually the result of indigestion in the upper bowel, near the bile-ducts, creating a thick mucus which obstructs the passage of bile from the ducts into the bowels. A regulation of the duct, small doses of podophyllin or the acids, with daily doses of some mild bilious laxative, will prevent their return. Crab-orchard water, sal-muscetelle, and other simple medicines answer every purpose.

Treatment. — Administer an active purgative injection immediately (251), (252). Internally, dioscorin, camphor, etc. (340), every fifteen minutes until relief is obtained, at the same time covering the whole belly with a large mustard-poultice. A strong decoction of the wild-yam root, drunk freely, is a medicine of some value, — so is a decoction of scullcap and high-cranberry bark, equal parts. This latter article is excellent in spasmodic affections, on which account it has gained the name of *cramp-bark*. The sickness at the stomach may frequently be allayed by effervescing drafts, to which twenty-five or thirty drops of lavender are added. Croton-oil, given in one-drop doses, done up with crumb of bread, will sometimes succeed well as a purgative medicine; or castor-oil and spirits of turpentine, equal parts, in two great spoonful doses, may be tried before the croton oil.

The warm bath is worth remembering, and trying, too, if the means are at hand. Hot fomentations of the bowels with a decoction of poppy-leaves, stramonium-leaves, hops, wormwood, boneset, or peppermint leaves, should not be overlooked. Bottles filled with hot water, or hot bricks rolled in flannel, should be placed at the back and feet to promote perspiration.

Persons subject to this complaint may derive advantage from one pill composed of extract of high-cranberry bark, etc. (100), taken after each meal for some months. At the same time a reasonable amount of exercise should be taken out of doors, and a sponge bath, with friction, be employed daily. Care should be taken not to be often exposed to the hot sun.

Painters' Colic. — *Colica Pictorum*.

THIS form of colic is caused by the slow introduction of lead into the system, — generally the carbonate of lead. It passes under the different English names of painters' colic, Devonshire colic, and dry belly-ache. The first of these is the name by which it is most commonly known, from its frequent occurrence among painters, who use white lead (carbonate of lead) a great deal in the preparation of their colors.

Symptoms. — The disease generally comes on in a very gradual

way. At first, the appetite is impaired, there is a slight nausea, belching of wind, languor, very obstinate costiveness, transient pains, with a feeling of weight and tightness in the belly, and a disinclination to make any exertion.

By degrees, the pain in the bowels, and particularly about the navel, becomes more severe, and has a *twisting* character. The belly becomes hard, drawn in, and a little tender to pressure, and the stomach very irritable. The pain occasionally slacks off a little; but never, even in mild cases, entirely stops, as in other kinds of colic.

In some severe cases, the pain runs up to the chest, and down the arms; also down to the bladder, causing the urine to be passed with pain and difficulty, and giving a sense of weight and bearing down in the lower belly. During the severest pains, the countenance is pale, contracted, and full of suffering; cold sweats break out upon the face and limbs, and anxiety and agitation seize the patient.

When the disease is not seasonably removed, it degenerates into the chronic form, the mental and physical energies become torpid, the circulation in the small vessels inactive, the skin dry, harsh, shrivelled, pale, sallow, or of a leaden hue, the temper irritable, desponding and gloomy, and the body wasted. Besides all this, the muscles which lift up the lower arm become *palsied*, so that, when the arms are raised, the hands hang down in a helpless condition. In some cases, there is a blue line along the edges of the gums.

Treatment. — For relieving the pain and opening the bowels, the treatment should be very much the same as that for bilious colic. There is one article, however, which is thought to have some special influence in curing this disease, after it has become chronic; it is alum. Fifteen grains of alum, two of aloes, two of jalap, and four of ipecac powder, may be mixed, and taken for a dose two or three times a day. If the muscles of the arm be palsied, one thirtieth of a grain of strychnine may be added to the above. The aromatic sulphuric acid, taken as a drink, fifteen drops to the tumblerful of water, is always worthy of trial.

The use of the electromagnetic machine may be tried for the palsy; or a splint applied to the arm and hand, with vigorous friction once or twice a day, will sometimes do much for recovering the use of the muscles.

But the best remedy for the palsied muscles is iodide of potassium (146), taken freely. The sulphuret of potassa, one ounce dissolved in a quart of water, and taken in teaspoonful doses, three times a day, is also worth a trial. The affected arm should be soaked an hour, once or twice a day, in the same amount of this latter salt, dissolved in a gallon of water.

Means of Prevention. — The numerous persons who work in lead should comb their hair with a fine comb, wash their hands and face, and rinse their mouth several times a day, and also wash the whole

person with soap once or twice a week, and with clear water, or saleratus and water, once a day. Their working clothes should be of a kind to admit of being washed once or twice a week, and they should be put off for others when out of the workshop. A paper cap should be worn while at work. The food of the workmen should not be exposed to the vapors or floating particles of lead, and consequently should not be carried into the shop; and when much of the poison is floating in the air of the workroom, it is a good plan to wear a mask to prevent its being drawn with the breath into the throat and lungs.

It has been said that those who eat freely of fat meats, butter, and other oily substances, are not attacked by the disease, though exposed to the poison. I know not what protection this can give, unless the skin is in this way kept more oily, which prevents the absorption of the poison. This would seem to afford a hint in favor of anointing the whole person once or twice a week with sweet-oil.

Costiveness. — Constipation.

FEW disorders are more common than costiveness. By this term I mean a sluggish state of the bowels, which causes them to retain the *fæces* longer than is warranted by health. In this complaint, the discharges from the bowels are not always less frequent than they should be, but they are less in quantity, are compacted and hard, and are passed by hard straining, and sometimes with considerable pain.

Symptoms. — Headache, dizziness, feverishness, bad feelings in the head not easily described, loss of appetite, sometimes nausea, but little desire to go to stool, a weight and heaviness about the lower part of the belly, and a sense of confinement over the whole body.

Causes. — Sedentary habits, particularly when connected with close application of the mind; astringent articles of medicine; stimulating diet, composed chiefly of animal food; various diseases, particularly those of a nervous character, and especially, a neglect to evacuate the bowels at proper periods. All these causes tend to weaken the bowels, and gradually to arrest that peculiar undulatory movement, or worm-like action, called the peristaltic motion of the bowels. It is this continual contraction of the muscular fibres of the intestines from above downward, which pushes the contents steadily along; and whatever weakens the force of this vermicular play of the intestinal walls, brings on constipation.

Treatment. — One of the first things to be done is to establish the habit of *attempting* to evacuate the bowels at a particular hour every day. The best time for most persons is soon after breakfast in the morning, or just before retiring.

Use Glycones (*Lilly*). They are much better than taking medicine internally. They produce prompt, painless, and copious stools.

Diet. — To this should be added a careful regulation of the diet.

The quantity of food taken should be no greater than can be easily digested. Full meals which distend the stomach and cause it to press upon the bowels embarrass their movements. Bread made from fine wheat flour is an abomination in this disorder. Eat only that from unbolted flour. Cracked or rolled wheat, prepared as directed among dietetic preparations, is excellent for the cure of costiveness. Fresh vegetables, as peas, beans, potatoes, squashes, and ripe fruits, in their season, are all wholesome, and help to relieve costiveness. But rich pies, puddings, cakes, doughnuts, and all that sort of trash, increase the disorder.

Water Injections, etc. — One of the best remedies is water, cold or tepid, according to the condition of the patient, injected into the bowels with the fountain syringe. Syringes for this purpose may be obtained in any drug-store, and one should be in every family. Water used externally, in the form of the sponge-bath, is also useful.

Medicines. — All the above measures having failed to give relief, take Mettauer's aperient, or the neutralizing mixture. If these fail, podophyllin, etc. (36), may have a trial. A cold decoction of thoroughwort, drunk daily, sometimes has an excellent effect. It must be remembered that medicines *may* make matters worse, and they should be used cautiously. Cascara Sagrada taken in small, repeated doses, say, half a grain once, twice or more times daily till the bowels move, for some weeks, then gradually decreased, often yields excellent results. A glass of some aperient like Hunyadi Janos water, one-third glass with one-half glass of plain water on rising, will then take the place of the cascara; and finally a glass of plain water will accomplish all that previously required the use of the cascara. Daily kneading of the bowels, following the course of the large bowel, will add greatly to break up the sluggishness of the muscular atony of the bowel-walls.

Piles. — Hemorrhoids.

THERE are few complaints more common than the piles, and scarcely any which cause more trouble and misery. They consist in a fullness of blood, and languid circulation in the lower portion of the lower bowel or rectum. In consequence of this congestion, either the veins of the gut become enlarged or varicose, or the blood gets infiltrated into the cells beneath the mucous membrane, and collects, so as to form bloody tumors.

These tumors, which are seldom absent, are the leading features of the piles. They sometimes appear externally, around the anus; this is *external piles*. At other times they are within the bowel; the complaint is then called *internal piles*. They are called *bleeding piles* when blood is discharged, and *blind piles* when it is not.

Symptoms. — Usually there is a sense of weight and weakness in the lower part of the back and loins, with a painful itching about the

anus. On going to stool, there is a burning, cutting pain experienced, which is followed by bearing down and tenesmus. If it be bleeding piles, the little tumors will bleed at every motion of the bowels. There are frequently disagreeable sensations in the head, general lassitude, an irritable state of mind, and a sense of fullness and anxiety in the stomach. The pains experienced range all the way from the slightest twinges up to the most terrible sufferings, which appear like tearing the body asunder.

Causes. — Everything that irritates the lower bowel, and causes a determination of blood to the part. All drastic physic has this effect, — particularly aloes, which acts especially upon the rectum. Habitual costiveness, straining at stools, riding much on horseback, sitting a great deal, tight-lacing, high-seasoned food, and stimulation generally, lifting and carrying heavy weights, and indurations of the liver, as well as a bilious indigestion.

Females during pregnancy are much affected with piles, which are induced by the costiveness so peculiar to their condition, and by the pressure of the enlarged womb upon the veins of the pelvis.

Treatment. — This should be medicinal and dietetic.

Great care must be observed not to push medication too far. Active purging will do great mischief. Yet costiveness must in some way be corrected. For this purpose, no remedy that I have ever tried has done better in this complaint than an electuary composed of confection of senna, flowers of sulphur and cream of tartar (6), taken in doses just sufficient to procure one natural motion of the bowels each day. Pills made of extract of thoroughwort are said to do well. If the liver be in a congested state, take some of the articles recommended in the chronic inflammation of that organ.

For the local treatment, nothing is better than two ounces of lard and one dram of the flowers of sulphur mixed, and rubbed between two plates of lead until they are well blackened. This ointment is not only soothing but curative, both in the bleeding and blind piles. An ointment of almost equal excellence may be made from one handful each of witch-hazel bark, white-oak bark, and sweet-apple tree bark, boiled together in one pint of water down to one-third of a pint. Then strain, and add two ounces of lard and simmer away the water, — stirring continually before and after removing from the fire, till it cools. Witch-hazel suppositories are excellent, as is also an ointment composed of 1 ounce stramonium ointment, 6 grains pulverized opium, and 5 grains tannin.

If there is much inflammation and distress, an emollient and soothing poultice should be applied, composed of slippery-elm bark and stramonium or poke leaves. Steaming the parts is sometimes useful, by sitting over a hot decoction of hops, stramonium, and poke.

Piles may often be cured by the use of the domestic syringe. Daily

injections of cool or cold water will do much to strengthen the bowel, and restore the dilated veins to their natural condition.

The food should be of a laxative nature, corn-bread, rye-pudding, bread of unbolted wheat flour, mealy potatoes, ripe fruit, pudding and milk, buckwheat cakes, broths, and a little tender meat once a day.

When the piles are very painful an ointment of cocaine, ten grains, vaseline, one-half ounce, smeared well over them, is exceedingly grateful. Five-grain iodoform suppositories are very effective in reducing piles; its odor, however, is quite objectionable to many. Surgical treatment is often the only resource left for their cure.

Looseness of the Bowels. — *Diarrhœa*.

LOOSENESS, or relax of the bowels, is manifested by frequent, copious, and thin or unusually liquid discharges. The excessive discharge may be caused either by irritating and unwholesome food, by inflammation and ulceration of some portion of the bowels, or by debility.

Symptoms. — Rumbling noise in the bowels, with more or less weight and bearing down and uneasiness in the lower part of the bowels. This pressing down and uneasiness are relieved as soon as the evacuation takes place, but returns when another is near at hand. Griping is generally present, the strength is reduced, and the skin is pale, dry, and, after a time, sallow.

Treatment: — When the complaint is caused by irritating food, it will generally stop as soon as the offending substance is removed, and not much medicine will be required.

To neutralize any acidity, to remove wind, allay irritation, and strengthen the stomach, the compound syrup of rhubarb and potassa is well adapted, given in teaspoonful doses, every hour, till it operates. A little paragoric added to it occasionally, or essence of peppermint, or spearmint, may aid its good effects.

If nausea and vomiting are present, put a mustard poultice of one-third strength upon the stomach, and give one-tenth grain of cocaine in a teaspoonful of water every fifteen minutes. If there is much griping, give an injection (248), with twenty drops of camphor in it. A common diarrhœa may generally be arrested at once by prescriptions 159 or 162, in teaspoonful doses, after each discharge.

When there is inflammation and ulceration of the bowel, the treatment must be similar to that for dysentery, — fomentations externally, and the occasional use of starch injections, mild cathartics (9), (10), and poultices externally.

Chronic Diarrhœa.

THE acute form of diarrhœa, not being properly managed, often runs on, and becomes chronic, and is at times exceedingly difficult to cure.

Symptoms. — Frequent discharges, generally with some pain and griping, restlessness, thirst, poor appetite, debility, loss of flesh, dry, rough, and somewhat sallow skin, and tongue dry and dark-colored. The food often passes through the bowels pretty much in the condition in which it was swallowed. The liver is generally out of order, and the bowels are frequently afflicted with a low grade of inflammation.

Treatment. — In this form of the disease, astringents and tonics will generally be required. Sometimes a teaspoonful of brandy, in a little sweetened water, or in clear water, several times a day, will effect a cure. Good cherry brandy is a valuable remedy; so is blackberry brandy. Many of the worst cases have been cured by taking no nourishment, for a long time, except milk, with a little lime-water in it.

When the liver is involved in the complaint, as evinced by light-colored stools, leptandrin, geranium, etc. (341), may be given with advantage.

In some instances, when there is considerable debility, pills of quinine, catechu, etc. (342), will do well.

A sponge-bath must be taken daily, and the skin be well rubbed after it.

Cholera Morbus.

THE above name is given to a disease common in warm weather, and characterized by sudden attacks of bilious vomiting and purging, with severe pain in the belly, cramps, and general fever and subsequent prostration. The great amount of bile secreted and discharged has given it the name *cholera*, from *cholos*, bile.

Symptoms. — The disease begins by sickness and distress at the stomach, which is succeeded by violent gripings, with vomiting of thin, dirty-yellowish, whitish, or greenish fluid, with discharges from the bowels similar to that vomited. The nausea and distress, with some few exceptions, continue between the vomiting and purging, and the pain, at times, is intense. The pulse is rapid, soon becoming small and feeble, the tongue dry, the urine high-colored, and there is much thirst, though no drink can be retained on the stomach. It is to be distinguished from diarrhœa by the *bilious* discharges.

Treatment. — Apply a large mustard poultice over the stomach and liver, and give tablespoonful doses of compound powder of rhubarb and potassa, every half hour, until the vomiting and nausea are checked, adding to each dose five to ten drops of camphor, if necessary. Perhaps it would generally be best, however, to give liberal draughts of warm water, at first, or flax-seed tea, that all the solid contents of the stomach and bowels may be washed out.

A teaspoonful of laudanum in a wine-glass of flax-seed tea, given as an injection, every two hours, will sometimes do excellently well;

or a tea made of chamomile flowers, or colombo, and made sour by a few drops of nitric or sulphuric acid, and given internally, will sometimes succeed better than most other things. One grain of svapnia and thirty grains of bicarbonate of soda dissolved in an ounce of sweet tincture of rhubarb, and given in teaspoonful doses, every half hour will often have a fine effect. The prescription 162 is also valuable.

Hot-water bags should be applied to the feet, and warm flannels, or other kinds of dry heat, to the whole body.

Asiatic Cholera.

BESIDES the above name, this fearful disease has been called epidemic cholera, malignant cholera, spasmodic cholera, and cholera asphyxia. It first attracted notice in Bengal in 1817, whence it spread westward through Europe, and in 1832 it reached Quebec, on this continent. It has since then visited Asia and Europe several times with great severity, and has even been present on our shores. But at the present day the strict vigilance of sanitary boards has done much to prevent its spread and mitigate its terrors. Through the investigations of Koch and others it is now known to be propagated by a microbe, called the comma bacillus, and the efforts of investigators is now being directed to the discovery of an agent that will destroy this germ and thus control the disease.

Symptoms. — First Stage.— The first, premonitory stage, is marked by derangement of the digestive organs, rumbling in the bowels, pain in the loins or knees, twitching of the calves of the legs, impaired appetite, thirst, and especially, a slight diarrhœa; and these symptoms continue from a few hours to several days. I should add to these symptoms what is said to have been recently discovered, namely, that for several days before the attack, *the pulse is down to forty or fifty beats in a minute*. This, if it prove to be reliable, is a very valuable symptom.

Second Stage. — This stage is marked by vomiting and purging a thin, colorless fluid, looking almost exactly like rice-water; by severe cramps in the calves of the legs, which soon attack the bowels and stomach. These cramps are excessively painful, and draw the muscles into knots. The tongue is pale and moist; the pulse feeble, though sometimes full and firm; the breathing hurried, with distress about the heart; great thirst; a feeling of internal warmth, and the secretion of urine entirely stopped.

These thin, colorless discharges by vomiting and purging, are the serum or watery portion of the blood, which oozes through the sides of the blood-vessels, and runs off rapidly, leaving the crassamentum, or red, solid part of the blood, stranded upon the inner surfaces of the arteries and veins. When so much of this is discharged that the blood cannot circulate freely, the patient sinks into the

Third Stage, which is characterized by great prostration; pulse hardly perceptible; skin cold and clammy; face blue or purple, and eyes much sunken; hands dark-colored and sodden, looking like a washerwoman's; breathing short and laborious; a sense of great heat in the stomach; and intense thirst. Recoveries from this stage seldom take place.

Treatment. — In the first stage, the diarrhœa should receive the most prompt attention. From five to ten drops of laudanum, repeated a few times, every three hours, will generally put a stop to it. Catechu (162) is also a suitable remedy.. The compound syrup of rhubarb and potassa, with some other articles (343), in tablespoonful doses, every hour, till it operates gently, is worth a trial. The diet should of course be very carefully regulated at such a time, though not particularly changed, except to leave off any indigestible article which is known to be injurious, and to be made a little more sparing than in time of perfect health.

When the second stage has set in, or the stage of vomiting, purging, and cramps, the treatment must be energetic. The sinking powers must be sustained by chloroform, opium, and ammonia (119), or by camphor, opium, and cayenne (344), giving one pill every hour. Brandy may also be given freely.

The warmth of the surface must be promoted by all possible means, hot bricks and bottles, tincture of cayenne, friction, etc.

In the third stage, the remedies recommended above are to be pursued with increased energy, particularly the stimulants, and the efforts to promote the warmth of the surface.

Dysentery. — Bloody Flux. — Colitis.

THIS is an inflammation of the mucous membrane lining the lower or large bowels. The small bowels begin at the stomach, and are eight or ten yards long; being largest near the stomach, and diminishing in size as they approach their termination in the cæcum. The lower or large bowels are two or three times as large as the small ones, and from their junction with the latter, they extend about six feet to the outlet, or *anus*. The large bowels are composed of the cæcum, the colon, and the rectum. The rectum is about one foot in length.

In most cases of dysentery, the rectum, and about half the adjoining portion of the colon, experience the chief force of the inflammation. Sometimes the whole of the colon and cæcum are affected. Sometimes the mucous membrane lining these is ulcerated, and, becoming wholly disorganized, passes off in shreds.

Symptoms. — The disease comes on with loss of appetite, costiveness, lassitude, shivering, heat of skin, and quick pulse. These are followed by griping pains in the bowels, and a constant desire to pass

their contents. In general the passages are small, composed of mucus mixed with blood. These passages are attended and followed by severe gripings and inclination to strain, learnedly called *tormina*, and *tenesmus*. They are sometimes, in the early stages, attended by nausea and vomiting. The natural feces, which do not pass off much, are small in quantity, and formed into round, compact balls, or irregular, hardened lumps. This tenesmus, or great desire to strain, will continue, perhaps increase, for several days—the discharges being mostly blood in some cases, and chiefly mucus in others. Having generally but little odor at first, these discharges become, as the disease advances, exceedingly offensive.

Causes. — Dysentery is very frequently caused by sudden changes from hot to cold, by which sweating is suddenly checked, and the blood repelled from the surface. Hot climates, and dry, hot weather are predisposing causes. All green, unripe, and unwholesome food, and indigestible food of every sort, may induce it.

Treatment. — In mild cases give a tablespoonful of castor-oil and two teaspoonfuls of paregoric, mixed, once a day. Sometimes, in place of the above, a dose of rochelle powder, dissolved in water, and eleven or twelve drops of camphor, may be taken. A moderate quantity of flax-seed or slippery-elm tea, may be taken as a drink, and the bowels be well emptied by an injection of starch.

For this type of diarrhœa as well as for most of those that precede it the following prescription is most valuable: Subgallate of bismuth, 4 drachms or teaspoonfuls, salol, $\frac{1}{2}$ drachm, paregoric, 6 drachms, tincture of camphor, 2 drachms, compound tincture of cardamon, 3 ounces. A teaspoonful in a little water every three hours.

The patient should not be allowed to sit up, and must be kept very still, and be allowed only a very scant diet, as flour porridge, well boiled, rice water, etc.

Chronic Dysentery.

WHEN dysentery “runs on” for some time, it is liable to become *chronic*.

Symptoms. — Looseness of bowels, — the discharges being unhealthy, more or less bloody, attended by bearing down, or a desire to strain, and being in number from two to forty a day. There is great debility, the pulse is weak and quick, the tongue slightly furred, the appetite lost, the face pale and sallow, the skin dry and parched. Sometimes the relax alternates with costiveness.

Treatment. — In this form of the complaint, astringents will be necessary (159), (161), (162), (345), (346), (347).

Injectons may be used, if necessary, composed of nitrate of sil-

ver, fifteen grains to the ounce of water, or an infusion of golden seal, with a little tincture of prickly-ash berries added to it.

The diet must be very light, easy of digestion, and nutritious. In some cases, it should be composed chiefly of wheat porridge, or boiled milk and boiled rice. In other cases, a little tender beef-steak should be taken once a day.

Worms. — *Vermes*.

THE intestinal canal is subject to various disturbances from the presence of worms. Of these troublesome tenants, there are three principal varieties.

The Ascaris, or *pin-worm*, called also maw or thread worm, is a small, white, thread-like worm from half an inch to an inch in length. These worms live, in great number, in the rectum, where they excite great irritation and itching.

The Lumbricus, or *ascaris lumbricoides*, is a round worm, about an eighth of an inch in thickness, and from an eighth to a quarter of a yard in length. Its color varies from a milky whiteness to a deep red. It generally occupies the small bowels.

The Tenia Solanum, or *tape-worm*, is a flat worm, with four suckers at the head, is from a few feet to some hundreds in length, and full of joints. It dwells in the small bowels, and feeds on the chyle as it comes along, before it is absorbed by the lacteals. In this way, it robs the body of nourishment, and produces great loss of flesh, and an enormous appetite.

Symptoms. — In the grown person the symptoms of worms are quite obscure, except an intolerable itching within the anus, which generally indicates pin-worms.

In children worms are indicated by paleness, itching of the nose, grinding of the teeth and starting in sleep, irregular appetite, bad breath, swelled upper lip, picking of the nose, hard swelled belly, and one cheek constantly flushed.

Treatment. — For expelling worms various articles have been used. Among these spirits of turpentine (155) has a high reputation. The following preparation does well: Spirits of turpentine, half an ounce; essence of anise, half an ounce; castor-oil, one ounce; worm-seed oil, one ounce. Mix. The dose for a child one or two years old is ten to twenty drops, every two or three hours. In two or three days, a brisk physic should be given. The worm-powder is quite successful.

An injection composed of quassia (66), or aloes (22), or of simple sweet-oil, is very effectual in removing pin-worms from the lower bowel. So is an injection composed of the red iodide of mercury, one grain; iodide of potassium, half a grain; and two pints of water.

Most of the above preparations are thought to be successful in expelling all kinds of worms; but for the *tape-worm*, no other remedy has yet shown itself as effectual as *pumpkin-seeds*. The seeds should be well bruised, and steeped in water. This should be drunk freely for several days, if need be. It is believed to be a sure remedy, even in cases of several years' standing. The expulsion of a worm may be hastened by having a movement over a vessel in which a quart or so of boiling water has been placed, which will have a tendency to relax parts so that the worm will loosen his hold the more readily. The drinking of the decoction of pumpkin seeds should be followed after an interval of an hour or so by a good saline cathartic, such as one or two teaspoonfuls of epsom salts.

In all cases of worms, the diet should be carefully chosen, and be connected with proper exercise, pure air, frequent bathing, and all those measures which tend to improve the general health.

After the expulsion of the worms, tonics should always be taken to strengthen the bowels, that the same evil may not return.

Acute Inflammation of the Kidneys. — *Nephritis*.

BEFORE speaking of this disease, I wish to give the reader a general idea of a kidney, and shall do so by the use of two cuts.

Fig. 110 presents the external surface of the right kidney, with its renal capsule mounted on top; *i*, being its upper edge; *f*, *h*, superior and inferior branches of the emulgent artery; *c*, *d*, *e*, three branches of the emulgent vein; *a*, the pelvis of the ureter; *b*, the ureter.

Fig. 111 is the same kidney laid open; 1, being the super-renal capsule; 2, the vascular portion; 3, 3, the tubercular portion, consisting



FIG. 110.



FIG. 111.

of cones; 4, 4, two of the calices receiving the apex of their corresponding cones; 5, 5, 5, the three infundibula; 6, the pelvis; and 7, the ureter.

The kidneys are glands, and their office is to draw or strain off

from the body those effete or worn-out particles, or *products of decay which contain nitrogen*, while the *liver* takes away those *carbonaceous matters which have no nitrogen*. These useless substances which go out through the kidneys are generally in the form of urea. In carrying off these matters, the kidneys may have more to do than properly belongs to them; and may be so stimulated, or irritated, or injured in some way, as to become inflamed.

Symptoms.—Like most other inflammatory diseases, it begins with cold chills and rigors, especially in the back and loins, followed by fever and pain. The pain frequently extends to the bladder, the loins, and the thighs, and is of a severe, lancinating kind — though sometimes obtuse. Pressure, motion, straining, or taking a full breath, add to its pungency. The urine is scanty, high-colored, sometimes bloody, and can only be passed drop by drop. In the loins there is a sense of heat, gnawing, and constriction; the bowels are either constipated, or relaxed by diarrhœa. A numbness of the thigh, and drawing up of the testicle on the affected side, are marked and peculiar symptoms. In some cases, there are nausea, vomiting, oppression of the stomach, faintness, hiccough, drum-head distention, and rumbling of the bowels. The skin is hot and dry, the pulse hard and frequent.

Causes. — The use of cantharides, oil of turpentine, and other diuretics, taking cold, violent exercise, mechanical injuries, the translation of rheumatism or gout, the striking in of skin eruptions, and gravelly formations in the kidneys or ureters.

Distinctions. — This disease is to be distinguished from *colic* by the pain being increased by pressure, and by the frequent but difficult discharge of red urine; from *lumbago*, from its being confined frequently to one side, and also by the urinary troubles, and by the nausea and vomiting; and from all other diseases, by the numbness of the thigh, and the drawing up of the testicles.

Terminations of the Disease. — It runs a rapid course, and may terminate by resolution, or by suppuration. When the latter happens, it is indicated by the decline of the more violent symptoms, a throbbing and a sense of weight, with chills, followed by flushes of heat, and sweating. The matter formed, generally small in quantity, may pass into the cavity of the kidney, and thence through the bladder to a natural outlet with the urine.

Treatment. — Either put the feet into a hot mustard-bath, or put mustard drafts upon them. At the same time apply a large mustard poultice upon the small of the back, and follow it up with hot fomentations of stramonium leaves and hops, or stramonium and wormwood or tansy.

Let perspiration be induced as soon as possible by five to ten-drop doses of tincture of *veratrum viride*, repeated every hour, or by teaspoonful doses of the compound tincture of *Virginia snake-root*, given every half hour.

If costiveness exist, the bowels must be opened by epsom salts, cream of tartar, or salts of tartar; or by copious injections of warm water, containing a few drops of the tincture of arnica-leaves. Such injections not only unload the bowels, but act as a local bath, by lying in the bowel near the inflamed kidneys.

The drinks must be mucilaginous and diuretic. The marshmallow root and peach-leaves, slippery-elm bark, flax-seed, mullein, elder blows, hair-cap moss, and cleavers, are all valuable. If the disease is caused by gravel, twenty drops of liquor potassæ, largely diluted with flax-seed and upland-cranberry tea, and taken freely as a drink, is excellent. We recommend Poland water in large quantities.

Chronic Inflammation of the Kidneys.

THIS is frequently the result of the acute form of the disease, but is also produced by injuries and other causes.

Symptoms. — A weakness in the small of the back, and a dull, heavy pain in the kidneys. The urine is passed often and in small quantities. It is alkaline — sometimes white and milky — and has in it deposits of phosphate of lime, and triple phosphates.

Treatment. — Infusions of pipsissewa, uva ursi, trailing arbutus, wild carrot, queen of the meadow, buchu-leaves, or foxglove are useful diuretics, and may be taken with advantage.

The bowels must be kept open with some gentle physic (18), if they are costive; and the alkaline sponge bath, with friction, be used daily.

An eruption may be brought out upon the small of the back by rubbing on a few drops of croton-oil; or, if the patient prefer it, a mustard poultice may be applied two or three times a week.

The food should be nutritious, and easily digested, and a little exercise be taken daily in the open air.

Acute Inflammation of the Bladder. — *Cystitis*.

THIS disease affects the lining membrane of the bladder, — sometimes its muscular substance. It may attack the upper portion, the middle, or the neck of this organ. It runs a rapid course.

Symptoms. — Burning, piercing, and throbbing pain in the region of the bladder. The pain extends to the perineum, and in some cases, to the testicles and thighs, and is much increased by pressure. The perineum, the space between the fundament and testicles, feels sore to the touch. The desire to pass urine is incessant, but the effort to do so is mainly ineffectual. The water passes off drop by drop, with great pain, or is entirely stopped, causing enlargement of the bladder, and great distress. Mucus from the inflamed lining of the bladder passes off with the water. Nausea, vomiting, and

great anxiety are common. The bowels are bound, and when the disease is on the side next the lower bowel, there is a desire to empty the bowels; and if the inflammation be in the neck, there is great pain in the perineum, and frequently an entire retention of the water. The pulse is full, hard, and frequent, the skin hot and dry, the thirst urgent, and the patient restless and dejected.

Causes. — This disease may be produced by taking cantharides and turpentine; by irritating substances forced into the bladder with a syringe, or by pushing bougies or catheters into it; by gravel-stones in the bladder; by retained urine; by external injuries; by gonorrhœa; and by cold applied to the feet, or to the lower portion of the abdomen.

Treatment. — If the urine be retained, it is of the utmost importance that it be early drawn off with the catheter, lest a distention of the bladder bring on mortification. Great care is required not to produce irritation by any roughness in introducing the instrument.

Leeches should be applied upon the lower part of the bowels, the perineum, and around the anus. When these are removed, warm poultices should be applied. Cold compresses will often do as well. The bowels must be opened with epsom salts. Injections of warm water, with a few drops of tincture of arnica-leaves, will act finely as a local bath, — the water being retained as long as possible.

The tincture of veratrum viride will be required in five to ten-drop doses, or the compound tincture of Virginia snake-root, to induce perspiration. Ex. jaborandi may sometimes be used for the same purpose.

Drinks must be taken very sparingly. A small amount of cold infusion of slippery-elm bark, or marshmallow and peach-leaves, or cleavers. This mucilaginous drink must be the beginning and the end of the diet during the active stage of the disease. Alkalis are exceedingly useful in allaying the pain and smarting of urination, perhaps the best remedy being liq. potass. citratis, in tablespoonful doses every two hours. Suppositories of opium and belladonna in one-fourth grain doses by the rectum every two to four hours allay the frequent urination and pain and quiet the spasm of the neck of the bladder.

Chronic Inflammation of the Bladder.— *Cystirrhœa*.

THIS is much more common than the active form of the disease. It often arises from the same causes which produce acute inflammation of the bladder.

It often passes under the title of “catarrh of the bladder.” It is a chronic inflammation of the mucous lining of that organ, and is a very common and troublesome affection among old people.

Symptoms. — Slight lancinating pains, with a feeling of heat in the region of the bladder, and a sense of weight and tenderness in the

perineum ; frequent and tormenting desire to pass water, with occasional spasmodic action of the bladder. The urine is loaded with tenacious mucus, just as the expectoration has large quantities of mucus in it when there is inflammation of the membrane lining the windpipe and bronchial tubes. When the water has stood a while, this mucus settles at the bottom of the vessel, leaving the fluid clear above. Great quantities of this are sometimes passed, — amounting even to pints in a day. The triple phosphates of magnesia and ammonia are often found in the water.

Frequently there are derangements of the appetite and digestive functions, a white or brown fur upon the tongue, a harsh, dry skin, with thirst and general debility, — especially in the back and loins. Sometimes there is a little fever.

Treatment.—To reduce the inflammation apply a mustard poultice. Urotropin in powder form, 7 grains to a dose or the tablet of $7\frac{1}{2}$ grains may be used as they are more readily bought, followed by a good drink of water and taken three or four times a day is the best drug to clear the urine of pus or other debris caused by inflammation of the bladder.

An injection into the bladder, once a day, of a tepid infusion of golden-seal root, with much care, may be of great service ; or an infusion of equal parts of golden-seal, witch-hazel, and stramonium. It may be done with a gum-elastic catheter and a small syringe.

The bowels must be kept open with the neutralizing mixture, or some other mild physic ; and the skin bathed with saleratus and water once a day, and rubbed well with a coarse towel.

Should there be any scrofulous, or gouty, or rheumatic condition of the system, the remedies for those complaints may be used in addition to the above.

Milk, bread and vegetable food should be the only articles of diet allowed.

Disease of the Supra-Renal Capsules.

THE supra-renal capsules are small bodies situated above the kidneys. (Fig. 111, 1.) Their office is not well understood. It has been found of late that they are subject to a disorder having peculiar symptoms. This is a comparatively new disease.

Symptoms.—The most marked symptom is a peculiar change in the color of the skin, called “bronzing.” This bronzing process begins in patches on those parts exposed to the sun, and to friction, as the neck, the backs of the hands, the fronts of the thighs, and the arms. These patches look, in color, like spots upon a bronze statue, deprived of their gloss.

Another marked symptom is a general *debility*, which comes on without any apparent cause, — there being, generally, no evidence of organic disease, and no loss of flesh, — and is attended with faint-

ings, loss of energy both of body and mind, a peculiar flabbiness of flesh, and an early death, apparently from sheer weakness.

The blood becomes depraved, and loses its coloring matter, as shown by the paleness of the skin where there is no bronzing.

The pulse is generally very soft and compressible. The stomach is irritable, the appetite is gone; there is nausea and sometimes vomiting, with pain and a sense of sinking at the pit of the stomach. Frequently there is costiveness, sometimes diarrhoea, and pains in the back and loins. In some cases there are epileptic fits, failure of memory, change of temper, or a numbness of the fingers, legs, etc.

Treatment.—The only method of treatment that promises any hope of cure in this trouble is a preparation made from healthy *Suprarenal Capsules*. These are concentrated and undergo a process which enables the important elements to be retained and a fair proportion of cases are now cured by their use.

Bright's Disease of the Kidneys. — *Albuminuria*.

THIS peculiar disease was first explained to the profession in 1837, by Dr. Bright, of England, whose name it took. It consists of a disorder of the kidneys, — probably a congestion and an obstructed circulation in them, from which arise two most important effects; first, albumen, an essential alimentary constituent of the blood, is secreted and passed off, in larger or smaller quantities, in the urine; and secondly, urea, the worn-out matters of the blood which the kidneys are made expressly to carry off, is permitted to remain. If the urine of a person having Bright's disease be examined, therefore, albumen, which should *not* be there, will be found, and urea, a natural constituent, will be absent. The presence of albumen, however, while abnormal, is not necessarily indicative of Bright's disease, as it may proceed from indigestion and blood disorders.

Method of Examination. — To discover albumen in urine suspected to contain it, place a little in a test tube, and boil it over a spirit-lamp. If albumen be present only in minute quantity, it may cause only a delicate opalescence; if in larger quantity, it may separate in curdy flakes, and fall to the bottom as a more or less abundant white precipitate. If *very abundant*, the liquid may become nearly solid.



FIG. 112.

The albumen is the same as the white of an egg, and the boiling has the same effect in whitening and hardening it, as upon that substance.

Albumen is sometimes found in the urine in a coagulated state, and having the shape of tubes or worms (Fig. 112). This is quite common in Bright's disease. The deposit seems to be made up of fibrous casts of the uriniferous tubes of the kidneys.

Symptoms. — The two unnatural conditions mentioned above give rise to the symptoms of Bright's disease. One of them, however, is itself the most constant and characteristic symptom of the disease, namely, the presence of albumen. This, too, being one of the nutritive constituents of the blood, its abstraction thins the serous portion of the blood, and causes it to filter out of its vessels into the cells, — causing dropsy of the cells, usually called cellular dropsy, or anasarca. This general dropsy begins frequently in the face, and spreads rapidly over the whole body and limbs. In addition to this, there are pains in the back and loins, a gradual failing of strength, and a derangement of digestion. The skin becomes dry, with a pale and bloodless appearance, and there are frequently thirst, nausea and vomiting. The urine frequently has fat, blood, epithelial scales, mucus, blood-discs, fibrous casts of the uriniferous tubes, and saline sediments; and is generally lighter by weight than in health, and less in quantity, and is apt to be red, brown, or dingy in color.

The retention of urea in the blood acts as a poison, and causes, toward the latter end of the disease, when accumulated in large quantity, drowsiness, convulsions, and apoplexy.

A frequent desire to make water, with a shifting back and forth of the bowels between costiveness and diarrhæa, are common symptoms.

Treatment. — The results of treatment in this disease are often unsatisfactory. Yet if taken in season, investigated with proper care, and treated with due diligence, much may be done for its cure. It is one of those harassing complaints, which physicians in family practice seldom have the patience to investigate and manage with sufficient care.

Let the healthy and active condition of all the vessels of the skin be the first object aimed at. This will relieve the laboring and faltering kidneys of a portion of their burden. The alkaline sponge-bath with vigorous friction every day will secure this object.

In the next place, the skin being put in a working condition, should be made to work by some internal diaphoretic, — as the tincture of *veratrum viride*, in doses of from five to ten drops, or the compound tincture of *Virginia snake-root*, in teaspoonful doses.

The kidneys may be still further relieved, especially when there is considerable tenderness and other signs of inflammation, by cupping, leeching, mustard-poultices and croton-oil.

The bowels should be regulated by some gentle physic, as cream of tartar dissolved in flax-seed tea, rochelle powders, epsom salts, etc. In some cases, podophyllin and leptandrin (40), or the compound powder of jalap (41), are useful.

When there is dropsy of the cells, elaterium may be used as physic (31), or the kidneys may be jogged by *digitalis* (130), (129), its effects being carefully watched. Cider, freely drunk, has been found useful in some cases.

To restore the blood, iron (73), (93), (74), (75), (72), (71) is the essential article. When there is considerable debility, some of the vegetable bitters, as quinine, quassia, gentian, colombo, etc., may be used daily.

Coffee, and all indigestible articles of food, as rich pastries, new bread, high-seasoned meat, and fats, must be avoided, — in a word, nothing must be taken, either in kind or quantity, which the stomach cannot easily digest.

Diabetes.

A CHRONIC disease of mild beginning which is associated with the presence of a large amount of sugar together with a great increase of the amount of urine passed. The usual amount that a healthy adult passes during the day is three pints and this disease may cause an increase in severe cases to several quarts; three to four quarts is not unusual and it can be noticed that this great waste of the tissues must naturally be associated with considerable loss of flesh and strength. It is a disease most often found in middle life and more common among men than women and is quite frequently passed down through generations.

Nature of the Urine.—Not only is there too much urine discharged, but, instead of being lighter than healthy urine, as in Bright's disease, it is heavier, and instead of holding albumen in solution, it contains *grape-sugar*.

To Detect Sugar.—Put a little of the suspected urine in a test-tube; add to it a drop or two of solution of sulphate of copper, which will give the fluid a pale-blue tint. Now add liquor potassa in excess: if sugar be present, this will throw down a pale-blue precipitate (hydrated oxide of copper), which will immediately re-dissolve, forming a purplish-blue liquid. Boil this over a lamp; if there be sugar, a reddish or yellowish-brown precipitate (sub-oxide of copper) will be thrown down; if no sugar, a black precipitate (common oxide of copper) will fall to the bottom.

Another Test.—Place a little urine in a test-tube; add to it half its volume of liquid potassa, and boil five minutes. If there be sugar present, the liquid will take a brownish or bistre tint.

Growth of *Torula* as a Test.—Place a portion of saccharine urine in a warm place, and a scum will soon rise, as if a little flour had been dusted on it. This, when examined under the microscope, proves to be minute oval bodies. These expand and dilate the vesicle containing them into the form of a tube. They still continue to enlarge, and project from the parent bladder, like buds. The whole then resembles a jointed fungoid growth (Fig. 113), which finally breaks up, and falls to the bottom, as a copious deposit of oval vesicles or spores.



FIG. 113.

Other Symptoms. — Great thirst, craving appetite, dry skin, a sense of weight and uneasiness in the stomach after eating, dry and parched mouth, white and foul or clean and red tongue, wasting of flesh, languor and aversion to exercise, debility, pain and weakness in the loins, costiveness, loss of the sexual feeling, and cold feet. As the disease draws towards a fatal end, the gums become spongy, the breath fetid, sometimes smelling like urine.

Treatment. — The skin should have about the same treatment as that recommended in Bright's disease. Also, the same counter-irritation over the kidneys. The bowels must be kept open by some gentle physic (13), (12), (15).

Tonics. — These will be required to restore the tone of the system, particularly iron, — same preparations as recommended in Bright's disease.

Astringents to check the flow of urine will be needed. Alum, in three-grain doses, three times a day, or sugar of lead, or white vitriol, or clear opium, will be serviceable. Creosote, in one or two-drop doses, and tincture of cantharides, have each cured cases.

One scruple of Peruvian bark, one scruple of wild-cranberry leaves, powdered, and half a grain of opium, mixed and taken three times a day, is a good remedy.

All articles which contain sugar and starch must be forbidden in the diet. Bread and potatoes contain a large amount of starch; and beets, parsnips, and some other vegetables, have sugar. It is best to confine the patient almost entirely to tender, fresh meats; and the drink, notwithstanding the great thirst, must be restricted to a *very small quantity*. Saccharin should be used to sweeten drinks instead of sugar.

Bleeding from the Kidneys, etc. — *Hæmaturia*.

By this I mean a discharge of blood from the urinary passage. It may come from the kidneys, the ureters, the bladder, or the urethra.

Symptoms. — The passage of the blood is preceded by pain in the region of the bladder or kidneys, and accompanied by faintness. There is generally heat and distress in the loins, and tenderness upon pressure in the region of the bladder or kidneys, according to the place from which the blood comes.

It is sometimes difficult to decide whether the coloring matter in the urine is really blood. In such cases, the microscope will generally detect the blood corpuscles, if present. They commonly appear as in Fig. 114, having a yellow color, and being pretty uniform in size.

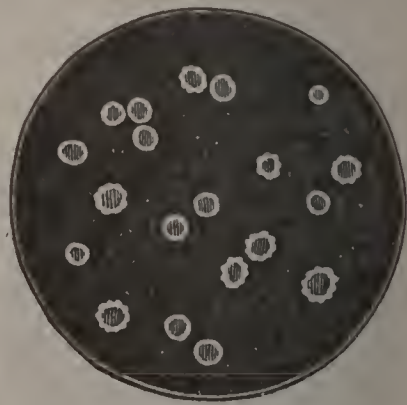


FIG. 114.

Treatment.—This must of course vary according to the nature of the case, and the immediate cause producing it. Where active bleeding exists, the patient must have absolute rest in bed, with applications of cold to the hips and loins. If the patient be strong and full of blood, wet cups or leeches may be applied over the kidneys, or the bladder. In such cases, too, the bowels must be freely moved with some preparation of salts (14), (18), (20), (25).

Sugar of lead is a valuable remedy; but it should be given in large doses for a short time, rather than in small doses for a long time. It is best taken in form of solution (348), two great spoonfuls every two hours, until five or six doses are taken.

But the best remedy is *gallic acid*. It seems to have extraordinary power in this complaint. It should be given in five-grain doses, mixed with a teaspoonful of mucilage of gum-arabic, and ten drops of tincture of henbane.

Suppression of Urine.—*Ischuria Renalis*.

THIS disease is, in one respect, just the opposite of diabetes. While immense quantities of urine are secreted in that, none is secreted in this. In that, the kidneys do too much; in this, they do nothing.

This complaint is sometimes called paralysis of the kidneys. It usually occurs in old persons, and those inclined to corpulency.

Symptoms.—The patient makes no water; and if the catheter be applied, none will be found in the bladder. The patient feels unwell, restless, anxious, with a slight pain in the loins and bowels, perhaps; but on the whole not ill enough to give any very good account of it. After a little time, nausea comes on, and perhaps vomiting, and soon drowsiness, wanderings of mind, incoherent talk, hiccough, stupefaction, and death. These head symptoms are caused by the shutting up, in the kidneys, the natural outlet of urea, of an excrementitious matter, which acts as a poison to the nervous system. Before death, the perspiration has a strong smell of urine.

Treatment.—The cause of this complaint not being known, the treatment must necessarily be a little uncertain. We cannot go amiss, however, in placing the patient immediately in a warm bath for fifteen or twenty minutes. Then apply wet cups over the kidneys, and follow these either by mustard poultices or by hot fomentations.

Let the bowels be opened by the compound powder of jalap, or by elaterium (31). Epsom salts or cream of tartar might in some cases be substituted for the above. A stimulating injection is also desirable (246).

Diuretics, as sweet spirits of nitre, digitalis, queen of the meadow and peach-leaves, equal parts, and marshmallow, are of course called for.

Much of the poisonous matter retained may be got out through the skin, by a free use of the compound tincture of Virginia snake-root or tincture of veratrum viride in full doses.

Although the symptoms, in the earlier stages of this complaint, may not attract much attention, or be thought worthy of notice, yet the treatment should be prompt and energetic, as a fatal termination is sometimes reached in the brief space of forty-eight hours.

Retention of Urine.

THIS disorder is often confounded with suppression of the urine, but it is different in every respect. In *suppression*, the urine is not formed by the kidneys; in *retention*, it is formed, and, in some cases, poured into the bladder, but is *retained* on account of some inability to pass it.

Ischuria. — This is one of the forms of retention. In this complaint, the urine has passed from the kidneys to the bladder, but from some cause, generally palsy of the muscles of the bladder, it cannot be passed off. In this case, there is no pain, but the stream of water flows off with slower and slower pace, — the patient having to make tiresome efforts with the abdominal muscles to get the bladder emptied. As the quantity discharged diminishes, the desire to urinate grows more urgent. Pressure just above the pubes gives pain, and the bladder feels under the hand like a large, hard tumor.

Dysuria. — In this form of the complaint, the water is passed to some extent, but with pain and heat along the water-pipe. This is generally caused by some inflammation along the urethra.

Strangury. — In this the water is only passed drop by drop, and with great burning, scalding, and tenesmus in the neck of the bladder. When there is considerable inflammation, the skin becomes hot, the pulse hard and quick, and the tongue covered with a white fur.

Causes. — These several forms of the complaint are caused by palsy of the bladder, gonorrhœa, inflammation in the neck of the bladder or the water-pipe, mechanical injuries of the bladder in child-bearing or otherwise, by tumors pressing upon it, by irritation from gravel or stone within its cavity, by stricture or partial closing up of the urethra, by disease of the prostate gland, by taking spirits of turpentine or cantharides, or by the absorption of this latter article when used as a blister.

Treatment. — It is obviously necessary in this complaint, that treatment, in order to be of any avail, should be prompt; for when the retention is complete, the bladder will burst in from two to five days, and cause the death of the patient.

The treatment must vary according to the cause of the retention.

If it be caused by palsy of the bladder, the common flexible cathe-

ter must be used daily until the muscular fibres recover their lost power. When much irritation is caused by introducing it, it is better not to withdraw it, but to close its external orifice with a small plug, which the patient can remove as often as necessary to let off the urine. To remove the paralysis, the electro-magnetic machine is worth a trial, the current being passed through the bladder. At the same time let the patient take strychnia (85), (86), (83), (95). Cantharides, in the form of tincture, or in connection with strychnia (291), is often used.

If the retention is caused by inflammation of the neck of the bladder, leeches should be applied to the perineum, and three or four drops of croton-oil may be rubbed on just above the pubes to bring out an eruption. Warm fomentations will also be serviceable, and warm hip-baths. Cooling diuretics, as infusions of marshmallow, cleavers, pumpkin-seeds, buchu, sweet spirits of nitre, etc., must not be omitted.

Inability to Hold the Urine. — *Enuresis*.

THIS complaint, generally called incontinence of the urine, is quite common among children. In some cases the child has no ability to hold its water at any time; but generally it is only passed off involuntarily at night while in bed. In adult life it is less frequently met with, except among the old.

Causes. — Irritation of the roots of the spinal nerves which go to the bladder, mechanical injuries of the bladder, palsy of the bladder, particularly in old people, debility of the neck of the bladder, a general weakness of the nervous system, worms in the bowels, piles, whites, gravel or stones in the bladder, long prepuce in boys, etc.

Treatment. — As a general rule, the change of constitution which occurs at puberty cures this complaint. But as this does not always happen, it is important that parents do everything in their power to break it up early, lest it become an affliction for life.

Children who suffer from this disorder are apt to drink largely. This habit should be restrained. But little drink should be allowed, whatever the desire for it. Care should be taken that the child make water before going to bed, — also that it be aroused at a late hour for the same purpose, and that the foot of the bed be elevated so as to draw the urine away from the neck of the bladder.

The skin should be washed all over, every day, with cool or cold water, and vigorously rubbed with a coarse towel. This will cause the excess of fluids to pass off through the skin, and lessen the action of the kidneys.

In some instances children urinate in bed through carelessness, being half conscious of what is occurring, but not caring enough to rouse themselves. In such cases, they are often cured by some decided correction, — the impending act of passing water connecting

itself in their mind with the correction, and recalling them instantly to full consciousness. Of course this mode of relief should be resorted to with great judgment and caution.

Ergotin in 1 grain dose given two or three times a day or a mixture containing 15 drops of the fluid extract of ergot or 10 drops of the tincture of belladonna given in water, morning and night are the best remedies. When any disturbances of the eyes are complained of, belladonna must be stopped.

If the disorder be caused by irritation of the spinal nerves, cold water douched upon the back, or croton-oil rubbed along the spine, or a warm stimulating or irritating plaster upon the lower part of the back, will be required. The electro-magnetic machine may do well in some cases.

Urinary Deposits. — Gravel. — Stone.

UNNATURAL deposits in urine are to be regarded simply as evidences of changes which disease is making in the body. As such they are valuable, — more valuable, in many cases, than any or all other symptoms we can study, and most valuable from the ease with which they may be investigated. Yet but very few physicians, comparatively, pay any special attention to them, or make any effort to acquire the small amount of knowledge needed for their detection.

Sources of the Urine. — The urinary secretion has three sources. The largest bulk of it comes from the superabundance of drink taken into the stomach. This is shown from the free flow of pale urine after taking copious drafts of water or other fluids. Such quantities of water as are often drunk, would embarrass the functions of animal life, were it not pumped off by the kidneys.

A second source of supply for the urinary secretion is to be found in the elements of imperfectly digested food, and also some abnormal elements arising from incomplete assimilation. Oxalic acid is a specimen of the latter, being sometimes largely excreted, in dyspepsia, soon after a meal.

The third source of urine is found in those old and worn-out atoms of the system, which can serve no further useful purpose in the animal economy, and which cannot be got rid of by the lungs or skin. It is only, however, one portion of the dead tissue, namely, that which is rich in nitrogen, which goes out through the renal strainer; another portion, which has a preponderance of inflammable elements — carbon, hydrogen, and perhaps sulphur — takes the outward channel through the liver, as bile.

Characteristics of Urine.—Healthy urine has a light amber color, is transparent, and has different degrees of density, its specific gravity varying from 1.003 to 1.030. It has an aromatic, violet-like smell, and a bitter, disagreeable taste, like salts.

That which is passed a little time after drinking largely, is pale, and has a low specific gravity, varying from 1.003 to 1.009, and is called *urina potus*. That passed soon after the digestion of a full meal, is called *urina chyli*, or *urina cibi*; it has a specific gravity from 1.020 to 1.030. That which is secreted *from the blood*, and is passed before eating or drinking in the morning, is called *urina sanguinis*; and has a specific gravity of from 1.015 to 1.025. This is the best specimen of the average density and nature of healthy urine.

Healthy urine contains urea, uric acid, sulphuric acid, phosphoric acid, lime, magnesia, phosphate of soda, etc. It is only when these are discovered in *excess*, that they indicate disease.

Examination of Urine.—Let a piece of blue litmus-paper be first dipped in the urine; if it be acid, the color of the paper will be changed to *red*, or reddish-brown. Should the blue color remain unchanged, then use yellow turmeric or reddened litmus paper; if the urine is alkaline, the turmeric will become brown, and the reddened litmus will be changed to blue. If the color in both cases remains unaltered, the urine is neutral; that is, neither acid nor alkaline.

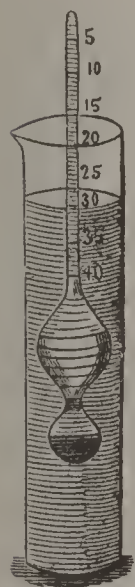


FIG. 115.

This being done, let the specific gravity be taken. This is easily done by the urinometer (Fig. 115). This instrument is known also by the names hydrometer, and gravimeter. It is generally made of glass. When placed in distilled water, it will sink to a certain point; and as all bodies immersed in fluid displace a bulk equal to themselves, it follows that in a fluid denser than water, the instrument will not sink so deep. The space above the large bulb is marked off into degrees corresponding to different densities. When this instrument is immersed in urine, and has come to rest, the number on the graduated scale, which stands at the surface of the liquid, when added to 1.000, will represent the specific gravity of the fluid. If, for example, the surface of the liquid corresponds with 9 on the scale, the specific gravity of the urine will be 1.009; if at 25, it will be 1.025.

By attending to the specific gravity of the urine, the physician may often gain important information respecting his patient, as it may be made to show him how much solid matter is daily carried out of the body through the kidneys. This, at the bed-side, may often give useful hints in regard to treatment.

The following table, constructed by Dr. Golding Bird, shows at a glance the amount of solid matter in 1000 grains of urine of different densities:—

Specific Gravity.	Solids.	Water.	Specific Gravity.	Solids.	Water.	Specific Gravity.	Solids.	Water.	Specific Gravity.	Solids.	Water.
1001	2.33	997.67	1011	25.63	974.37	1021	48.93	951.07	1031	72.23	927.77
1002	4.66	995.34	1012	27.96	972.04	1022	51.26	948.74	1032	74.56	925.44
1003	6.99	993.01	1013	30.29	969.71	1023	53.59	946.41	1033	76.89	923.11
1004	9.32	990.68	1014	32.62	967.38	1024	55.92	944.18	1034	79.22	920.78
1005	11.65	998.35	1015	34.95	965.05	1025	58.25	941.75	1035	81.55	918.45
1006	13.98	986.02	1016	37.23	962.72	1026	60.50	939.42	1035	83.88	916.12
1007	16.31	683.69	1017	39.61	960.39	1027	62.91	937.09	1037	86.21	913.79
1008	18.64	981.36	1018	41.94	958.06	1028	65.24	934.76	1038	88.54	911.46
1009	20.97	979.03	1019	44.27	955.73	1029	67.57	932.43	1039	91.87	909.13
1010	23.30	976.70	1020	46.60	953.40	1030	69.90	930.40	1040	93.20	906.80

The mode of using the above table is this. Having learned the density of the urine passed in twenty-four hours by means of the urinometer (Fig. 115), a glance at the table will show the proportion of solid matter and water in 1000 grains of the urine. Then, by weighing the whole quantity of urine passed in twenty-four hours, the weight of solids drained off by the kidneys may be determined by the simple rule of proportion.

Symptoms of Gravel. — A sudden attack of pain in the region of the kidneys, so acute and severe, frequently, as to cause fainting and even convulsions. The pain runs down to the groin and thigh, causing a numbness on the affected side, and a drawing up of the testicle. The pain is excessive at times, and then remits. Finally it stops suddenly.

Leading from the kidneys to the bladder are two small tubes about the size of a goose-quill, called ureters, — being the appointed channels of the urine. The pain, of which I have spoken, is caused, generally, by the passage of a stone along one of these small tubes. If the stone happen to be a little too large for the tube, or uneven or ragged upon its surface so as to bruise and tear the delicate lining of the ureter, severe pain is the result. The pain is intense when the stone moves along; remits when it stops; and suddenly ceases altogether, when it gets through, and drops into the bladder.

Sometimes there is no pain, the gravel being so fine as to pass through the ureters very easily. It then passes through the urethra also, and is found as a sediment of the urine at the bottom of the vessel.

These urinary deposits are various, and quite unlike each other in kind. They indicate different states of health, and require to be spoken of separately.

Uric-Acid Gravel.

THIS form of deposit passes indifferently under the name of *uric acid gravel*, or *lithic acid gravel*. The person who is in the habit of passing this kind of deposit largely, is said to have the lithic or uric acid diathesis or condition.

The urine of persons in this state lets fall, after it has stood awhile,

a reddish sediment, like brickdust. This consists chiefly of urate of ammonia (Figs. 116 and 117), tinged with certain coloring matters. This coloring substance may be more or less abundant, and give to the deposit various shades, as dirty-white, yellow, pink, and red. The



FIG. 116.



FIG. 117.

pure uric acid sometimes appears as fine sand, or large crystals (Fig. 118). The urine is of a dark copper-color, about like brown sherry, and is more scanty than in health. It is also highly acid, giving to litmus paper a deeper shade of red.



FIG. 118.

Persons who pass this kind of gravel largely are apt to be troubled with inflammatory complaints; with acidity of the stomach and heartburn; and some of them with gout and rheumatism.

Placed under a blowpipe, uric acid is decomposed, and gives out an odor like that of burnt feathers, combined with the oil of bitter almonds. It is dissolved by liquor potassa, from which muriatic and nitric acids precipitate it; and by sulphuric acid, from which it is precipitated by water. Acetic, nitric, and muriatic acids, alcohol, ether, and water, do not dissolve it.

Causes. — Uric acid is the form in which nitrogen and the effete compounds which contain it are got out of the body. It is the result of the decomposition of the tissues of the body. Its gravelly particles are the sands of life daily washed out of us, — reminding us always that we are wasting away. Whatever causes the body to waste rapidly, produces it in excess. We find it, therefore, in the urine of those who suffer from gout, rheumatism, dyspepsia, fevers, debility of the genital organs, straining of the loins, etc., which produce loss of flesh.

Treatment. — The remedies for this uric-acid gravel are the *alkalies*, bicarbonate of potash, bicarbonate of soda and magnesia. The

first named is generally the best. It may be used in the form of the neutralizing extract,—especially if there be costiveness. If the bowels do not need physic, let the potash be taken in the shape of lye made from hard-wood ashes (300). Fluid magnesia is an excellent remedy; so is liquor potassa, taken in twenty or thirty-drop doses. The urine must be watched, and these remedies discontinued when it becomes alkaline. Black coffee drunk freely every day is an excellent remedy.

At the same time the stomach should be supported by some bitter tonic, as the infusion of quassia, gentian, columbo, Peruvian bark, etc.

Iron is, in many cases, not to be overlooked. If the patient be pale and bloodless, some of the preparations of this metal will be needed (61), (73), (74).

Acid must be carefully avoided, both in food and drink.

The diet must be plain, digestible and nourishing, and quite moderate in amount. The *quality* is of less consequence than the *quantity*.

Exercise is of great consequence, and must be regular, and, if possible, in the open air.

The skin must receive daily attention in the shape of an alkaline sponge-bath, with friction. This will throw upon the skin much of the labor done by the kidneys. Poland Spring water used in large quantities is good.

Phosphatic Deposits.

THESE deposits are indicated by a state of the urine just the opposite of that which contains the uric-acid gravel. They are contained in urine which is either alkaline when passed, or becomes so very soon by standing.

As the urine cools, a white sand falls to the bottom, and frequently a film forms upon the surface of the water. Looking at this film in different lights, you may see in it the several colors of the rainbow. Skim off this pellicle, place it upon paper, and let it dry; and you may then see the little shining crystals. This urine quickly grows putrid and offensive. Sometimes it smells strongly of ammonia. The more phosphates it contains, the sooner it becomes alkaline.

These deposits are generally the triple phosphates. Healthy urine contains the phosphate of magnesia in a state of solution. Under some circumstances, the urea of the urine is decomposed in the kidneys, and ammonia is disengaged. This combines with the phosphate of magnesia, and forms the triple salt of the phosphate of ammonia and magnesia, which is not soluble.

Symptoms. — A sallow complexion, a languid, spiritless state of mind, and an exhausted, debilitated condition of body. The urine is pale, rather copious, slightly turbid, has a low specific gravity, and smells unhealthy, having sometimes the faint odor of weak broth. There is generally derangement of the digestive organs, windy stomach and bowels, nausea, constipation, or diarrhœa, stools of various

colors, and sometimes, in diarrhœa, resembling yeast, and an aching pain and weakness in the loins.

Causes. — These deposits are produced by great debility of the constitution, by injuries of the spine, dyspepsia, defective assimilation of food, bad diet, irritation of the neck of the bladder, and organic disease of the kidneys. But they are caused more especially *by whatever wears and exhausts the nervous system*, as heavy cares, depression of spirits, sedentary habits, great mental exertions, masturbation, and venereal excesses.

Treatment. — These deposits being connected with great debility, care must be taken not to make the matter worse by taking active purgatives, by extreme fasting, or by any means which will increase the weakness.

On the contrary, the strength must be supported by all the means that can be commanded. With this view, the citrate of iron (75) may be taken. Arsenic combined with iron (80), to allay irritability, and impart strength at the same time, may be used. The valerianate of iron (93) is excellent for the same purpose.

Connected with a state of urine just the opposite to that which holds the uric-acid deposits, this form of gravel calls for the opposite remedies. Instead of the alkalies, the acids are wanted. The nitric and muriatic acids, with a vegetable tonic (76), may be used. Borax is spoken of in high terms, and is thought by some to have great power in turning alkaline urine acid. The compound balsam of sulphur is highly spoken of, and the compound infusion of trailing arbutus is also mentioned with approbation.

It is all-important to throw off care, and to give the mind a chance to rise up with all the elasticity it has. To bring this about, journeys and amusements are useful. The society of lively, laughing, witty friends will do a great deal to give the spirits a rebound, and the whole health an upward movement. Such persons are a blessing to the world; and he who reckons a few of them among his friends will live the longer for it.

The skin should have the benefit of the daily tonic effect of a sponge-bath, with water at first tepid, and afterwards cool; and exercise, out of doors, should be habitual, and connected, as much as possible, with objects of pleasure.

The drinking of hard water is highly injurious; and if none other can be had, it should be distilled, and then spread out to the atmosphere, in shallow vessels, that it may recover its pleasant taste by reabsorbing air and carbonic acid.

Oxalic Deposits.

OXALATE of lime in the urine is the cause of this kind of gravel. It appears in the form of dumb-bells, and octahedral crystals. (Figs. 119, 120, and 121.)

The urine has a specific gravity of 1.015 to 1.025, and is generally of a dark amber-color, and clear and bright; it is generally acid,



FIG. 119.



FIG. 120.



FIG. 121.

though occasionally alkaline or neutral. Urea is generally found in it, and epithelial cells (Fig. 122). Unlike the uric and phosphatic urines, it is quite free from sediments, except, as often happens, there is a large amount of urea in it, in connection with the oxalate of lime.

When the urate of ammonia is combined with the oxalate of lime, it often happens that the latter has to be dissolved with a little liquor potassa, before the former can be seen with the microscope.



FIG. 122.

Symptoms. — Great depression of spirits, excitable state of the nervous system, painful susceptibility to external impressions, dyspeptic symptoms, and disturbances of the liver, a fear and dread of consumption, emaciation, inability to make exertion, — the smallest exertion causing fatigue; in men, a deficient sexual power, a pain and weight across the loins, and some irritability of the bladder.

Causes. — These deposits are supposed to result, like most other derangements connected with loss of flesh, in too great a degree of oxidation. Vegetables produce oxalic acid by just the opposite process, namely, deoxidation.

Whatever depresses the vital powers, may generate this deposit, as mental depression, overwork of the brain, burdensome cares, idleness of mind or body, masturbation, debaucheries, intemperance, venereal excesses, and injuries of the spine.

This deposit may also be produced by certain articles of diet, which contain the oxalic acid. Among these may be named the rhubarb plant, which in summer is largely used for tarts; and sorrel.

Treatment. — The treatment for these deposits should be very much like that for the phosphatic. The stomach and liver should receive some special attention. A pill of leptandrin, podophyllin, etc. (39), may be used with advantage. The preparation of nitric and hydrochloric acids (76) must generally be taken for some time. In cases of great irritability, the sulphate of zinc (82) does well.

The diet should be plain, digestible, and nourishing, — all articles containing oxalic acid being rejected, as the rhubarb plant, sorrel, tomatoes, onions, etc.

For the rest, follow the directions for the treatment of phosphatic deposits.

Urate of Ammonia Deposits.

THE urine which contains these deposits is generally pale, and of low specific gravity, about 1.012. It becomes opaque on cooling, from the deposition of a nearly white urate of ammonia. Instead of falling down readily, this forms ropy masses in the fluid, and looks like mucus or pus, or something between the two. Its real nature is discovered by applying a little heat, which quickly dissipates it.

Microscopic Character. — Place a drop of this turbid urine between two slips of glass, and examine it closely with a microscope; you will see myriads of minute globules adhering together in linear masses. Now place a drop of the turbid urine in a watch-glass, and gently warm it; as soon as it has become clear, add a drop of hydrochloric acid to it, and when it is cold, examine it with the microscope. The muddiness will be gone, and you will now see lozenges, or thick cohering prisms of uric acid (Fig. 123). The explanation of this is, that the hydrochloric acid combines with the ammonia, forming muriate of ammonia in solution, and liberating the uric-acid crystals.



FIG. 123.



FIG. 124.

Urate of soda (Fig. 124) is sometimes found in urine, which has similar chemical reactions with urate of ammonia.

Causes. — These deposits are generally produced by some over-eating, or derangement of the skin.

The treatment is the same as that for uric-acid gravel.

Hippuric Acid Deposits.

THESE deposits appear in the healthy urine of the cow and the horse; and also in that of human beings, but in such small quantities as to be scarcely appreciable.

They sometimes, however, appear in unhealthy proportions; but they never show themselves as a sediment, until after the addition

of a stronger acid. The urine containing them is generally slightly acid or neutral, — sometimes alkaline, — having a low specific gravity, from 1.006 to 1.008. The triple phosphates are often found in it.



FIG. 125.

To detect these deposits, fill a large watch-glass with urine, and evaporate it over a lamp to a few drops. Then add to it about half its bulk of hydrochloric acid, and set it aside. The addition of the acid produces a bright pink color, and an odor like new hay. After a few hours, if the hippuric acid be present, its peculiar crystals will be seen. (Fig. 125.)

Cause. — In man, this deposit is supposed to depend on the absence of food having a good share of nitrogen. The urine of vegetable-eaters contains it in largest quantities.

Treatment. — The only treatment required is a diet composed in good proportion of animal food, a proper attention to the skin by bathing, etc., and when debility exists, tonic medicines, as iron and bitters, with out-door exercise enough to keep the muscles in working order.

Cystine Deposits.

THESE do not occur in healthy urine, and rarely as an element in diseased action. They contain twenty-six per cent of sulphur.

Urine which contains cystine is of a pale yellow color, and has a low specific gravity. It frequently has an oily appearance, and its smell is peculiar, resembling that of sweet brier. Sometimes its odor is fetid, like putrid cabbage. On being kept for a short time, it has its surface covered with a pellicle which looks oily, and consists of a mixture of crystals of cystine and the phosphate of ammonia and magnesia.

The cystine deposit appears to be diffused through the urine, which is always turbid when boiled. It is a white or fawn-colored powder, and falls to the bottom as a sediment. It undergoes no change by warming the urine, and this distinguishes it from white urate of ammonia. It is not soluble in diluted hydrochloric or strong acetic acid, which distinguishes it again from the earthy phosphates.

To test this deposit, add liquor ammonia to a portion of it, and shake them. If the deposit be cystine, it will dissolve readily. Allow a few drops of the solution to evaporate on a slip of glass, and the six-sided tablets of cystine will remain, which may be examined under the microscope. (Fig. 126.)

It is to be remembered that occasionally the chloride of sodium or common salt crystallizes in octahedral forms (Fig. 127), which, in some positions, may look very much like cystine. The ready solubility of the chloride in water, and the absence of all color when they are examined by polarized light, will prevent mistaking these crystals

for cystine. If urine containing common salt be quickly evaporated on a slip of glass, and be then examined, instead of the octahedrons, we find crosslets and daggers. (Fig. 128.)

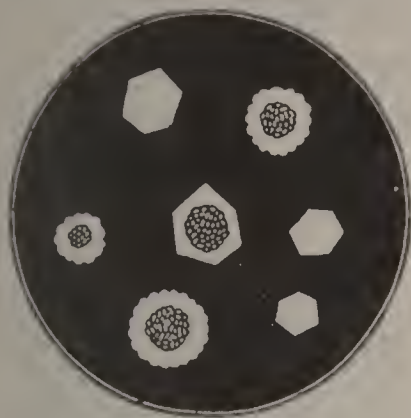


FIG. 126.



FIG. 127.



FIG. 128.

Causes. — An excess of sulphur in the tissues, a scrofulous constitution, and hereditary predisposition, with defective oxidation, and torpidity of the liver. It is often found in the urine of girls who have the green sickness.

Treatment. — The great object is to improve the general health, which is to be done by attending to the skin, and the administration of iron and bitters, and also alteratives. The syrup of iodide of iron is a valuable remedy. Podophyllin and leptandrin (34) are wanted to regulate the liver. The nitro-muriatic acid (76) should be tried.

The daily sponge-bath, and daily exercise, as in most chronic complaints, must on no account be neglected.

Stone. — Calculus.

It often happens that the proper treatment for removing urinary deposits is not adopted in season. In such cases, gravelly particles, finding a lodgment for a time, in the kidneys or bladder, are apt to draw other particles to themselves, which become fastened to them, and form a layer quite around them. Over this, other layers form in succession, until a stone is produced so large that it cannot pass off. These grow to various sizes, — being sometimes so large as to fill the bladder.

Uric-Acid Calculus. — The most common of these formations is the uric-acid calculus. It is generally smooth or slightly tuberculated on the surface, and varies in color from a pale yellowish-fawn to a reddish-brown. When sawn through the centre, its layers will be found tolerably regular, but of different thickness. (Fig. 129.)

To test it, place a small fragment upon platinum foil under the blow-pipe. If uric acid, it blackens, and gives out an odor like burnt feathers mixed with the oil of bitter almonds.

Mixed Calculus. — These calculi are frequently composed of two or more different kinds of matter arranged in irregular layers. Fig. 130 is a mixed calculus, — the dark layers being oxalate of lime, the light ones uric acid.

In testing such, fragments of each ingredient should be separately examined.

Urate of Ammonia Calculus. — We occasionally meet with a calculus composed of the urate of ammonia. These calculi, when found, are generally small in size, smooth or slightly tuberculated upon the surface (Fig. 131), and of a pale slate or clay color. When heated before the blowpipe, it gradually disappears.

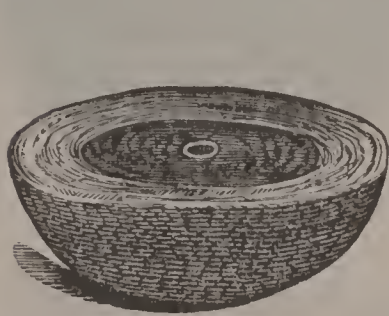


FIG. 129.

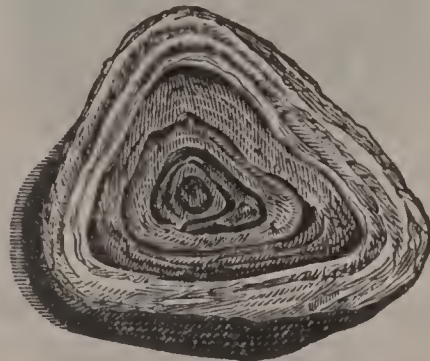


FIG. 130.



FIG. 131.

Phosphate of Lime Calculus. — This has a smooth polished surface, and quite regular layers, which separate easily when the calculus is cut asunder. It has a pale fawn or stone color. (Fig. 132.)

It chars before the blowpipe, and gradually becomes white as the carbon burns away. Diluted nitric or hydrochloric acid dissolves it without effervescence.

Oxalate of Lime Calculus. — This is frequently met with uncombined with others, but more generally its nucleus is uric acid or urate of lime. It commonly has a brown, dark-olive, or dirty-purple color. Its surface is irregular and somewhat rough. It looks like the fruit of the mulberry, and is known as the *mulberry calculus*. (Fig. 133.)

It dissolves, without effervescence, in diluted nitric or hydrochloric acid. When thus dissolved, the addition of a little ammonia will cause it to fall to the bottom as a white precipitate.



FIG. 132.

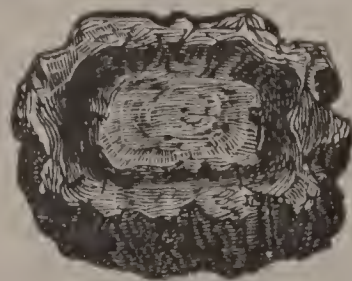


FIG. 133.



FIG. 134.

Fusible Calculus. — This is a mixture of phosphate of lime and the phosphate of ammonia and magnesia. It is the most common of all the calculi, except the uric acid. It has an oval, irregular form (Fig. 134), and is white, soft, and friable, like chalk. Sometimes it is hard.

It may be known by the readiness with which it melts down before the blowpipe, without being consumed.

Causes. — The causes of the different kinds of gravel have been already explained. Generally stones of the bladder are formed in the

kidney, and descending through the ureters into the bladder, are prevented from passing out through the water-pipe by an enlarged prostate gland. Remaining in the bladder, they soon get encrusted over by other matters in the urine, and grow by accretion to be stones.

Symptoms. — When a stone in the bladder reaches a certain size, especially if it is rough, it always produces suffering. A dull, annoying pain is felt at the end of the penis. The desire to make water is frequent, and there is a sense of weight in the perineum. Sometimes the stream of urine is suddenly stopped by the stone falling on the orifice of the urethra. As the bladder becomes nearly emptied, it embraces the stone, and the pain is increased. Jolting in a carriage causes great pain. Mucus passes off with the urine, and sometimes blood. After a time, the appetite fails, hectic sets in, albumen appears in the urine, and the patient sinks under inflammation of the bladder.

These symptoms being found in diseases of the kidneys and bladder, no one is authorized to pronounce upon the existence of stone, until the stone has been touched by a metallic sound introduced into the bladder.

Treatment. — The only effectual treatment is a choice between three operations, — *lithotrity*, *lithotomy*, *litholopaxy*.

The first consists in introducing an instrument, a kind of forceps, into the bladder, through the urethra, taking hold of the stone, and crushing it. The preparatory treatment consists in correcting the unhealthy state of the urine, and the frequent introduction of bougies or sounds to enlarge the water-pipe for the easy entrance of the crushing forceps. The after treatment consists in diluent drinks to increase the urine, injections of warm water to wash out the fragments, with hip-baths, soothing injections, and leeches or cupping upon the perineum.

Lithotomy consists in making an incision into the bladder through the perineum, and taking out the stone or stones whole.

Litholopaxy consists in crushing the stone *in situ* by means of the lithotrite and syphoning out the debris.

Dropsy of the Belly. — Ascites.

THIS is a collection of water in the cavity of the belly; sometimes the fluid is outside of the peritoneum, and next to the muscles.

Symptoms. — An enlargement of the belly, with a sense of distention and weight, — particularly on the side on which the patient lies. When the collection of water is large, the breathing becomes short and difficult, and the swelling is uniform over the whole abdomen.

In some instances the fluctuation of the water may be distinctly heard when the patient moves about, — just as we may hear the water in a half-filled barrel when it is rolled over. This sound of the fluid, when heard, distinguishes the complaint from pregnancy,

and from the drum-head state of the bowels. This fluctuation may sometimes be produced by pressing upon one side of the belly while the patient is standing or sitting, and striking the other side with the ends of the fingers of the other hand.

In some cases, there is loss of appetite, dry skin, costiveness, scanty urine, oppression of the chest, cough, colic pains, and variable pulse.

Causes. — A frequent cause of this complaint is chronic inflammation of the serous membrane which lines the abdomen, — I mean the peritoneum. It may also be produced by scarlet fever, fever and ague, disease of the heart, particularly dilation of the right cavities, and diseases of the liver, particularly the shrivelled, hobnail condition of the liver, — in short, whatever causes a pressure upon the portal veins, and obstructs the venous blood returning from the intestines.

Treatment. — The remedies for this disease are mainly diuretics and purgatives. The bowels may sometimes be reduced in a few days from an enormous size, by medicines which excite the action of the kidneys. Digitalis combined with acetate of potash, etc. (130), forms an excellent preparation. The patient should have as a constant drink, a strong infusion made from two parts of hair-cap moss, and one each of juniper berries and dwarf-elder bark; also an infusion of queen of the meadow.

The purgatives used in this complaint are those which produce watery stools. One of the best of these is elaterium. It will sometimes carry off the water with great rapidity; combined with some active cathartics (31), it will have all its good effects without the griping it is apt to occasion alone.

Cream of tartar, taken in large doses, every day, will sometimes do well. Epsom salts produces watery stools, and is a good remedy.

For promoting absorption of the fluid, the iodide of potassium, taken in from three to ten-grain doses, three times a day, is a valuable medicine in many cases. The compound infusion of parsley is said to be still better.

The skin must receive careful attention. The alkaline sponge bath, with friction, will increase the transpiration of fluid through that organ. Exercise does much to keep up an active circulation, and to lessen dropsical effusions.

The strictest temperance, both in eating and drinking, must be observed. A light and nourishing diet, with water, tea, and the diuretics named above for drinks; beyond these the patient must not go.

A kneading and shampooing of the bowels once a day has an excellent effect; it gives activity to the circulation in obstructed veins. A bandage tied close around the bowels, and tightened as the water diminishes, has an effect upon the sluggish vessels similar to that of the laced stocking in varicose veins of the legs. It lessens the liability of a return of the complaint.

Dropsy of the Cells. — General Dropsy. — *Anasarca*.

JUST under the skin is a membrane composed chiefly of cells, called the cellular membrane. When a considerable part or the whole of these cells are filled with a watery fluid, we call the complaint *anasarca*, or *cell-dropsy*. If, besides this, there is a collection of water in the large cavities, we give it the name of *general dropsy*.

Symptoms. — The disease generally begins with a swelling around the ankle and leg, which is more visible at night after standing and walking, and is less perceptible in the morning in consequence of the horizontal position of the night. To the touch of another person, dropsical feet and legs feel a little colder than natural; and when hard pressed with the finger, a pit will be sunk in the flesh, which remains some time before it fills up. As the disease advances, the skin of the legs becomes smooth, shining, and sometimes even cracks open to let out the water. The limbs, and indeed the whole person, become stiff, heavy, and clumsy.

As the disease advances, and ascends to the belly and chest, there is shortness of breath, a sense of suffocation on moving or lying down, a tightness and distress across the epigastrium, thirst, dryness of skin, wakefulness, loss of appetite, scanty and deep-colored urine, and a slow fever.

Cause. — General dropsy is caused by whatever weakens the general system, and by such circumstances as obstruct the circulation in the veins. The most frequent causes, therefore, are certain diseases of the heart and kidneys.

Explanation. — Modern physiology has demonstrated that the veins do a certain part of the work of *absorption*. The serous membranes which line the larger cavities of the body exhale watery fluid enough, and no more than enough, to keep them moist, and cause the organs within to play smoothly upon their surface. If the fluid were not taken away as fast as it is poured out, the cavity, being a shut sac, would become full, and we should have dropsy. It is the office of the veins to absorb this fluid and convey it away in the general current of the blood.

This is the method of their doing it: The walls of the veins are so constructed as to *permit watery fluids to pass through them, either in or out*. When they are comparatively empty, or only moderately full, fluids on the outside pass *in*, and mingle with the contents. This is called *endosmosis*. When they are very full, the watery portion of the blood will filter through, and pass *out*. This is called *exosmosis*.

Now, if the reader will think a little, he will easily see that if the veins are barely full enough not to allow any fluid to *pass in*, the natural exhalations of the shut sacs would bring on dropsy; but if

the veins are so full as to cause water to *flow out*, then the dropsical accumulation will be still more rapid.

Diuretin in 20 grain doses dissolved in water and taken five or six times a day may prove serviceable in both this disease and the one on the preceding page.

VENEREAL or SEXUAL
DISEASES

VENEREAL OR SEXUAL DISEASES.

OF all the diseases to which flesh is heir, none bring so much misery, moral and physical, as those called sexual or venereal. To the physician, they are the source of the greatest anxiety and perplexity. They bring him into possession of the most delicate secrets, — secrets which involve the peace of families and neighborhoods, — secrets which his honor as a man, and his truth as a physician, compel him to lock fast in his own breast, and hold sacredly apart even from his nearest companions, — secrets which, if revealed would fill domestic circles with unutterable bitterness and heartburnings, and whole neighborhoods with scandal and immorality. These secrets are often a burden to him. They are in his breast like undigested food in the stomach, — disturbing the whole nature.

The patient, if a man of sensibility, suffers even more, of course, than his physician. In many cases, he is a man of virtuous intentions, and perhaps of religious habits, who has fallen in a moment of temptation; and he fears that the effect of his sin will spread itself through his whole system, and extend to the end of life; or, still worse, that having poisoned the fountain of his life, it will go down as a heritage of misery to his offspring; or, what he would deprecate as almost equally calamitous, that the partner of his bosom may become the innocent partaker of his disease.

In this state of apprehension, he turns to his physician, not merely to keep his secret, but to cure his disease. How great a pity that, in such circumstances, he does not always fly immediately to an honorable physician, instead of seeking the advice, as many do, of those miserable quacks, who lure him to their dens only to get his money, having no intention or ability to cure his complaint.

These diseases are divided into two great branches, characterized, in part, by different symptoms, and generally held to be entirely different complaints. The first to come under consideration is

Pox. — *Syphilis.*

THIS disease had a very early origin. It was known among the Jews, as we learn very clearly from the fifteenth chapter of Leviticus. Dr. Adam Clarke's Commentary upon this chapter, at least, makes it apparent. David, the king of Israel, has unconsciously left on record, in the thirty-eighth Psalm, a most graphic description of Tertiary

Syphilis, experienced in his own person. Dr. Clarke says: "It is most likely the Psalm was written in reference to some severe affliction that David had, after his illicit commerce with Bathsheba; but of what nature, we are left to conjecture from the third, fifth, and seventh verses." The Psalm is dated not quite a year after the act alluded to, — about the right time for the terrible symptoms David describes to make their appearance.

The term syphilis is from a Greek word signifying filthy. There is one unvarying sign of this disease, — the existence of an ulcer or ulcers, usually upon the genital organs. The French call this ulcer a chancre. The common name is simply venereal sore, or ulcer. A pimple first appears; on the summit of this a pustule forms; then the rupture of the top of this brings to view the ulcer or sore. This ulcer is shallow, more or less circular or oval in form, bounded by a perpendicular and slightly jagged border, and furnished with a smooth, yellow base, moistened by an unhealthy secretion. The skin around the sore is a little thickened and inflamed. This is a simple venereal ulcer. It generally lasts about five weeks, and then heals.

But it is not always thus simple. It may be an inflammatory chancre, attended by excessive inflammation. It may be what is called a *sloughing chancre*, characterized by the perishing and falling off of large parts of flesh. It may be *gangrenous*, or marked by a tendency to mortification. It may be *phagedenic*, or *eating*, — being distinguished by a rapid loss of substance, or eating away of flesh. Or, finally, it may be *indurated*, — being noted for the peculiar hardness of the base, and of the flesh immediately around it.

A venereal sore is the result of impure connection with a person having the syphilitic disease. The poisonous secretion of a sore, applied to the skin of a healthy person, produces *inoculation*, and a new sore upon the previously healthy person is the result. This chancre appears in a few days after coition, — a certain time being required for it to produce its effect, as in the application of vaccine matter to the arm.

Bubo. — The next symptom in the order of occurrence, which frequently follows the ulcer, is the bubo. It is named from a Greek word which means groin, from its usually appearing in that part. It is a painful swelling of the inguinal gland in the groin, and is caused by the absorption of virus or poisonous matter from the chancre. This gland is one of the lymphatics, a class of vessels as numerous, all over the system, as the veins and arteries. They are likewise called absorbents. Those that originate from the private parts absorb the poison from a venereal sore, and convey it to the glands in the groin, which being poisoned by it, inflame and swell.

The bubo generally appears in from one to two weeks from the appearance of the ulcer. It is usually upon the same side which the chancre occupies upon the penis. When the bubo advances to supuration, and becomes an open sore, it is then a glandular chancre.

Vegetations. — These are peculiar growths appearing upon different parts of the skin, which resemble certain vegetables. They are found most frequently, in the male, on the head of the penis, and on the membrane lining the foreskin. In the female, they are found at the entrance to the vagina, and not infrequently in the vagina itself. They sometimes appear on the neck of the uterus.

Primary Disease. — Thus far, the diseases noticed are what are called *primary*. If properly treated, and cured in season, the constitution is not infected, and no subsequent troubles appear. But a result so fortunate as this is not common. Generally, the treatment is either too long delayed, or is too brief and superficial. The poison is, in consequence, absorbed into the circulation; the whole constitution becomes infected; the fluids and solids are so acted on and altered, in fact, that a *special constitution is created*. For this reason the affections of the skin, the mucous membranes, the bones, etc., which follow, are called

Constitutional. — These constitutional diseases never appear immediately, as the result of an impure connection, but only *after* those affections already noticed. The primary diseases are local; the constitutional affections are general.

The first thing which strikes the eye in these constitutional complaints is the *color* and *appearance* they give the skin. It has a *reddish, coppery* tinge, and a peculiarly *dirty* appearance.

The order in which the several parts are affected, are, first, the skin and mucous membranes; second, the hard substance surrounding the bones, called *periosteum*, the tendons, and the bones themselves. Those affections which appear upon the skin and mucous membrane are usually called *secondary*, because they are the *second* to appear; while those affecting the bones, etc., are denominated *tertiary*, because, in the order of their appearance, they are in the *third* class.

Eruptions of the Skin, and Ulcers. — Of the constitutional eruptions, there is a great variety,—so great that I cannot, in small space, give a minute description of them. The breast and arms are not infrequently the first to be affected. Attending these eruptions there is little uneasiness, and no pain; though there is sometimes a slight itching. The first breaking out is usually of a *copper color*, somewhat paler than it subsequently is. The eruption is often in the form of blotches, elevated only a very little above the skin. They are composed of small pustules, with a little fluid in them, which soon dries away, and the whole may be rubbed off like bran. This may leave the skin looking tolerably sound, and inspire the belief that no further mischief is to be experienced. No hope can be more delusive. *Parts afflicted with this complaint show no tendency to heal.* The first crop of pimples is soon followed by a second, which produces a thicker crust, and yields a larger amount of bran. This rubbed off, small ulcers appear underneath.



Vesicular Uruptions. — There is another syphilitic affection of the skin, which appears in the shape of vesicles, like small-pox. These dry and leave a scab.

Scaly Eruptions. — There is still another affection, which is in the form of scales, and one scale will be piled upon another. It begins with an eruption of copper-colored blotches, which become covered with scales; these are succeeded by scabs, and when these fall off, shallow ulcers are left with copper-colored edges. (Fig. 135.) This is a stubborn form.

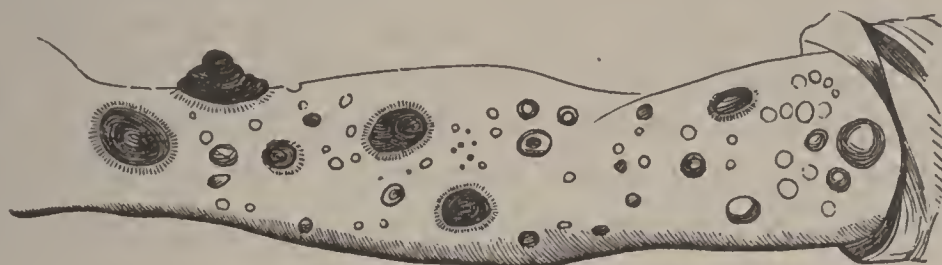


FIG. 135.

Tubercular Eruptions. — In another variety of the disease, broad, red, copper-colored tubercles, or hard elevations appear, most commonly about the sides of the nose, or on the cheeks. Gradually they suppurate, and are succeeded by deep ulcers, terminating in scars. This is an unfavorable form of the disease, and usually appears some considerable time after the primary symptoms, in persons whose constitution has been shattered. PLATE V.

This rather belongs to the tertiary form of the disease; and in addition to the above, patches of unhealthy inflammation are apt to form on the tongue, and after a time break, disclosing ragged, orange-colored ulcers. PLATE VI. Fig. 2.

Many other forms of eruption exist; but in a popular work like this, it would be useless to make the nice distinctions which their description would require.

Some of the worst forms of the secondary affections are found upon the mucous membrane of the mouth and throat. These correspond, in number and size, with the affections of the skin. They affect the lips, the internal sides of the cheeks, the tongue, the tonsils, the pharynx, the soft palate, the nasal cavities, etc. They are terribly destructive in their effects, forming gaping ulcers, and eating deeply into the parts. They often make shocking work in the whole mouth and throat; and, when attended with considerable inflammation, make it almost impossible to swallow anything, or even to open the mouth. I have often seen breaches through the palatine arch (PLATE VI, Fig. 1), and even the whole arch destroyed (PLATE VI, Fig. 2). Persons have often died from starvation, — not being able to swallow. The ulcers sometimes take hold of the tonsils, and “dig them out as if it were done with a punch.”

These ulcerations affect the mucous membranes of the genital organs. In the female, they often affect the vagina and the neck of the womb, and thus may exist for a long time, as the cause

of whites, without being suspected as such. They affect also the mucous lining of the fundament and the large bowel. They sometimes exist in the ear, and more often in the eye. This latter affection passes under the name of syphilitic iritis. In PLATE V. the artist has well represented this form of constitutional disease in the eye.

The disorder having, by frightful ulcers, run riot upon the delicate structures of the skin and mucous membranes, advances boldly onwards, attacking the muscles, the tendons, the hard covering of the bones and the solid bones themselves. No part of the human frame—not even the skeleton—can escape this devouring complaint. The bones of the nose and face are generally the first to be attacked. These perish slowly,—falling away piece by piece,—the nose, in the mean time, sinking down nearer to a level with the cheeks. From these parts the disease may spread to the bones of the whole system.

These affections of the bones are attended by pains of almost every kind and degree. These pains are sometimes fixed in one place; at other times wandering, the whole skeleton being painful. In these latter cases, they seem to the sufferer to reach the very marrow. Sometimes when the pain is fixed in one place, the feeling is such as might be supposed to be experienced if the bone were being *bored*. These pains are most terrible during the night.

Upon those parts where the skin is near the bone, as the forehead, or shin, syphilitic nodes or tumors often appear, which are hard, like cancerous tumors. Besides the above, there are the loss of the hair (alopecia), blindness, deafness, and various other mischiefs, resulting from syphilis, which need not be described.

Is the Constitutional Disease Communicable? — Many believe, — even among those who are eminent in the profession — that the constitutional forms of the disease are not communicable. A few years ago, indeed, this latter opinion was *generally* received. It is now quite extensively doubted, or rather disbelieved. Facts are constantly occurring under the eye of unprejudiced physicians, which make it very evident that the constitutional disease may be communicated from one person to another.

The Disease Hereditary. — It is no small amount of suffering, bodily and mental, which the individuals endure who contract this disease. But the inflictions visited upon them, severe as they are, are small compared with the aggregate of ills entailed by it upon the long line of their posterity. Whether it be the man or the woman whom the syphilitic virus has inoculated, if it be allowed to be absorbed, so as to affect the constitution, it will be very likely to be sent down to the children, and children's children. The divine law which links the sins of the father with the sufferings of even the third and fourth generation, is nowhere more painfully illustrated

than in the scourging descent, through many generations, of this terrible disease. It may be passed down to posterity by either of the parents; but if both be diseased, the transmission will be more certain. If the mother be infected, she will infect the child while carrying it. If the father's constitution be poisoned, the child will receive the infection from him, through the semen, and will be likely, while in the womb, to infect the mother. I recollect but one author of note (Ramsbotham) who has mentioned this mode of infection. I have myself seen two cases of it.

This constitutional disease, whether it exist in the mother, or be communicated to the child, and thence to her, by an infected father, is a frequent cause of abortion. Throughout nature, blight is the result of a diseased parentage. Mature fruit is seldom obtained from infected seed.

Is the Constitutional Disease Curable?—No question connected with the complaint possesses a greater interest than this. None is pressed more earnestly upon the physician. In a certain sense the disease is curable. Its outward manifestation may be wholly repressed. The health of the person suffering from it may be restored, and become, in an important sense, good. *But this cure is never brought about by nature; it may be, and is often effected by medicine.* I have never failed to effect such a cure in any case which has come under my treatment. Such results may properly, in general terms, be called cured.

Yet there is a sense in which a cure never occurs. It is a well attested fact, that a system once thoroughly pervaded by the poison is never completely purged of it. It may be shorn of all its active malignancies; but it has too intimately permeated the tissues and solid bones to be wholly expelled. Pursue it as we will with the remedial forces of our art, it still takes refuge in the most subtle processes of animal life, — still infects the currents of being, and finds expression in the scrofula, in the lupus, and in the scaly affections of other generations. Dr. Erasmus Wilson, the great authority in skin diseases, says: "I feel convinced that a considerable proportion of those diseases which pass under the name of scrofula are the produce of the syphilitic poison,—are, in fact, not scrofulous, but syphilitic." Astruc thought the same, and suggested, what is doubtless true, that the transmission of syphilis must occur through several generations before it becomes scrofula. Bierchn, Camper, Stoll, Portal, Hufeland, and Alibert, have all advocated the same opinion.

This is doubtless right, though there are many authorities on the other side. He must be a poor observer who cannot discover a probable filial relationship of scrofula to syphilis.

A variety of facts, admitted by the whole profession, go far towards demonstrating this relationship. Scrofula is always hereditary. It is a disease of the parent, imparted to the offspring. But there is scarcely any disease so certainly sent down to posterity as syphilis.

Scrofula is *like* syphilis in many of its characteristics. It is like it in its power of propagating itself from parent to child. It is like it in affecting nearly *all* the children of diseased parents. It is like it in the variety of the structures it attacks, — affecting the skin, the mucous membranes, the bones, etc. Like syphilis it produces hard tumors, ulcers of the skin, abscesses, and decaying of the bones. And finally, the great remedy for tertiary syphilis, iodide of potassium, is likewise the great remedy for scrofula; and, indeed, almost every remedy which acts favorably upon one, is found useful for the other. This could hardly occur were not the diseases identical in nature.

We can scarcely be surprised that a disease so widely diffused as scrofula should be the product of syphilis, when we reflect how frightfully prevalent were the causes of this latter affection during the earlier and the middle ages of the world.

To pass over the records of earlier times, with merely mentioning Abraham, and Lot, and Jacob, and Reuben, and Samson, and David, and Solomon, and numerous females, of whom some singular things are written in the older scriptures, and omitting all mention of the incredible and almost universal debauchery and prostitution of Greece, and Rome, and Persia, and Media, and Egypt, I may say that *Europe, in the middle ages, was well-nigh converted into a vast brothel.*

Foremost in the race of profligacy were those in authority, kings, and emperors. The licentiousness of Childeric knew no bounds. He carried off and violated the wives and daughters of his vassals, without regard to any right, human or divine. His successors were generally a race of lecherous men, who spread debauchery on every hand. The French monarchs, from Pepin and Charlemagne, were a race of debauchees. Their courts were national brothels, in which the finest women in the land were trained in the arts of seduction and lust. Francis I, in 1515, endeavored to invest prostitution with elegance and chivalry, and even to ennoble it, by abandoning the public women of the palace to his subaltern officers, and substituting for them ladies of noble blood. In this movement, the nobles and the officers gave the king their support.

“They are all gone aside; they are altogether become filthy; there is none that doeth good, no, not one.”

Brantome justifies Francis in his selection of girls of noble blood, on the ground that “they could not communicate the venereal disease to the noblemen of the courts, like the common prostitutes.” But the king, who was previously diseased, infected them; and these noble women, so called, passing from the arms of the prince to those of the courtiers, presented to them the fatal infection received from the king.

The way in which Francis himself was infected illustrates, in a most shocking manner, the morals of the times. His illicit loves with

the Belle Ferronière were not concealed from her husband, who, though obliged outwardly to regard the dalliance of his wife with the monarch as an honor, was inwardly indignant, and determined to become infected himself, and thus disease his wife, and revenge himself upon the king. This plan was suggested to him by a noble who had another motive, namely, that of punishing Francis for some personal spite. "How," said the husband, when the suggestion was made, "shall I give this disease to my wife, when we are both sound?" "Go visit an infected girl," said the noble, "and to render the matter certain, as I am infected, I will see your unfaithful wife." The result was such as the husband desired; and in 1547, Francis I, the gay and chivalric monarch, perished of the most foul and loathsome of all diseases.

Debauchery did not die with him. It was cherished by his successor, Charles IX, and his mother, Catherine de Medicis, and his grandson, Henry III. The reigns of Henry IV, Louis XIII, Louis XIV, the Regency, and of Louis XV, were stained by the same licentiousness and disregard of public decency, until the whirlwind of the revolution came to purify the moral atmosphere.

The reader will now, I think, be in no mood to wonder that the men and women, and many of royal progeny, whether the dishonored occupants of thrones, or the more private recipients of the public bounty, are a scrofulous and degenerating race. Nor need it be much wondered at, that so large a portion of men and women everywhere have more or less scrofula in their frames. Happy are those who can find no trace of this complaint in their constitution! They should rise up and call their virtuous progenitors blessed. They should especially thank God that they have sprung from the loins of a race more noble and kingly in the eyes of Heaven than all the royal lines of the world.

Treatment.—With the well drawn picture of the results of this terrible disease before the reader, he can appreciate the importance attached to proper treatment. If there should be any doubt in the matter whether he has the disease or not, he should at once obtain the opinion of his medical advisor. For instance, the sore on his penis known as the *chancre* may not be syphilitic but be of the so-called soft chancre or chancroid type due to connection with unclean partners, but not due to constitutional infection. They are in reality ulcers but in some cases are markedly similar to syphilitic ones. But their treatment would be distinctively local and entirely different from the treatment of true chancre.

Personally I think time is gained rather than wasted in waiting for an exact diagnosis to be made, and if the train of symptoms beginning with the chancre which will appear from two to six weeks after infection and followed by the ulcerated throat, copper colored rash, sore and enlarged glands in groin, hair falling out and gastric

disturbances often accompanied by fever, show that we have a case of syphilis to attend to, then the way is clear. It was formerly the universal treatment to cauterize the sore at once. The writer has seen so many unsyphilitic sores cauterized unnecessarily, and on the other hand has seen many cases of true syphilis that had been cauterized, and that the only treatment given which is almost malpractice, that he earnestly advises moderation in this matter and desires that the too often assured security promised be at least accepted with reservation. The reason why cauterization is not successful in many cases is because the virus or poison has entered the system before the pimple or sore demonstrates its presence. This will appeal to your reason if you realize that sometimes six weeks elapse after impure connection before the chancre appears.

As in some cases, in my opinion a great minority, thorough cauterization minimizes the trouble and *perhaps* prevents constitutional troubles, its application is described. The general belief is that poison remains in the sore for a time before it is absorbed into the constitution. It is of the utmost importance that it be destroyed before the absorption takes place.

The caustics used are nitrate of silver (stick nitrate), nitric acid, chloride of zinc, potassa with lime, caustic potassa, and the painless caustic.

The nitrate of silver is much used, but the best surgeons now regard it as useless. It does not prevent the absorption of the poison. The caustic potassa, the potassa with lime, and the painless caustic, are the sure remedies,—that is, if applied in season. But they must be employed with caution. It will not do to trust them in bungling hands. A little vinegar and water must be immediately used to neutralize the caustic when it has accomplished what we desire. After the sore is cauterized, a piece of lint, dipped in a solution of watery extract of opium, one dram to four ounces, should be laid on it; and the organ enveloped in another piece of lint soaked in tepid water, and covered in oiled silk. The patient should remain at rest as much as possible, keeping the penis elevated, and repeating the opium dressing to the wound, and the water dressing to the whole organ, night and morning. In addition, the patient should take two pills (19), to be followed, night and morning, for three or four days, with a tablespoonful of (20). In some cases, a piece of lint, wet with the tincture of muriate of iron, diluted and kept upon the chancre will cause it to heal kindly, and with safety to the patient.

If this treatment be adopted *early* and *properly*, the patient is cured, and nothing further needed. But time is generally lost. The poison is absorbed before the patient is seen by the physician; and the question then is, how it is to be driven out.

To accomplish this, the diet should be regular and unstimulating; alcoholic drinks and tobacco should be forbidden; the mind should be kept at rest; a cold or tepid bath should be taken daily; the

action of the bowels and kidneys should be kept properly regulated. These things will put all the expelling agencies in proper condition for work; and no single medicine will put them all into action like mercury. For this reason, no other single drug has enjoyed a reputation for curing pox so wide as this.

But it must be used with judgment. No remedy is more safe, if judiciously employed, or more destructive if abused. Abuse *made* mercury a curse; judicious use *makes* it a blessing,—at least in this disease.

Of the many varieties of mercury we have to choose from the protiodide known as the yellow iodide can be handled best. It may be obtained in one-sixth grain pills in bottles of one hundred, and beginning with one pill at meal time worked up by degrees to six a day. For example, the first week one pill morning, noon and night, the next week two in morning, one at noon and one at night; the following week two in morning, two at noon and one at night, etc. If symptoms of “mercury saturation” appear such as sore, or bleeding gums, dripping of saliva from the mouth, griping pains in the bowels or diarrhœa, then immediately drop back to three or four a day and find the limit of each individual. The point is to find how much the patient will take and then keep that dose constantly for three or four months. At the end of that time the iodide of potassium may be used in conjunction with the mercury. The form of the “mixed treatment pill, Number 2,” compounded by eight or ten reputable chemists is very useful. Each pill contains:

Iodide of Potassium,	. . . . .	2 grains.
Syrup of Iodide of Iron,	. . . . .	5 minims.
Corrosive Sublimate,	. . . . .	1-64 grain.
Solution of Arsenic and Iodide of Mercury,	. . . . .	2 minims.
Tincture of Nux Vomica,	. . . . .	2 minims.
And the dose is three to six pills during the day, or if a solution is desired:		
Iodide of Potassium,	. . . . .	4 drachms.
Corrosive Sublimate,	. . . . .	1 grain.
Compound Syrup of Sarsaparilla,	. . . . .	4 ounces.

Give one teaspoonful in water after meals.

This treatment is continued for nine months steadily, then for the next six months to a year it is taken on alternate months and if faithfully carried out the patient may rest assured that he has followed the line of treatment that science has found to give the best chance to escape the clutches of the most loathsome as well as one of the most prevalent diseases known since the beginning of the world.

In the third or tertiary stage, where the bones are affected, where the mind gives way, as in dementia and paresis, or the muscles refuse to obey the bidding of the brain, as in locomotor ataxia and kindred spinal chord troubles, enormous doses of iodide of potassium, even to six hundred grains a day may be used.

I should mention that there are those who claim to cure the disease with other remedies, without mercury, and I am not disposed to be dogmatical, and say it cannot be done. For this purpose, perhaps as good a recipe as has been proposed is the compound syrup of stillingia, tincture of poke-root, tincture of sheep-laurel, each four ounces, mixed; of which, from a teaspoonful to half a tablespoonful is to be taken three times a day. I think well of this remedy, especially if it be in connection with a small amount of mercury. If stillingia be used, obtain McDade's stillingia comp., 1 dram three times daily.

The Bubo, if not attended with pain, may be treated with compression, by a piece of plaster of ammoniac with mercury, or by touching it with nitrate of silver. Should there be inflammation, and the formation of matter be inevitable, the bubo should be opened by touching it with the caustic potassa; and the resulting sore must be treated with the solution of opium and water dressing. Should the sore need stimulating, it may be touched lightly with nitrate of silver.

Eruptions upon the Skin.— In treating the disease after it appears upon the skin, etc., we shall derive great advantage from the use of either the warm or the vapor bath once a day. With this, if the case be not very old, we may employ (148) or (150); but if the disease be an old one, showing itself in the throat, or attacking the bones of the face, we must give iodide of potassium (138), combined with compound decoction of sarsaparilla. This is the great remedy for tertiary syphilis; but when the case is obstinate, it may sometimes be discontinued, and the corrosive sublimate (139) be substituted for it.

It is to be observed that the older the disease grows, and the more chronic its character, the more does mercury lose its control of it. In the first attack, the blue pill is the best; in the second, as a general thing, the iodide or the biniodide of mercury; in the third, the corrosive sublimate; in the attacks subsequent to this, particularly in the tertiary form of the disease, the iodide of potassium. When the throat and nose are so ulcerated as to make a case absolutely terrible to contemplate, it is surprising to see how rapidly the recovery will often take place under the influence of this latter remedy.

For syphilitic iritis, apply frictions twice a day on the eyelids and eyebrows with ointment (172), (173); and administer internally two pills of (136) daily.

Clap. — *Gonorrhœa.* — *Blenorrhagia.*

THE reader is aware that the nose, mouth, and lungs are lined with a mucous membrane, which is liable to become inflamed from various causes. This inflammation we call a cold or catarrh. During its continuance, mucus and other matters, of different colors and degrees of consistency, are more or less freely discharged.

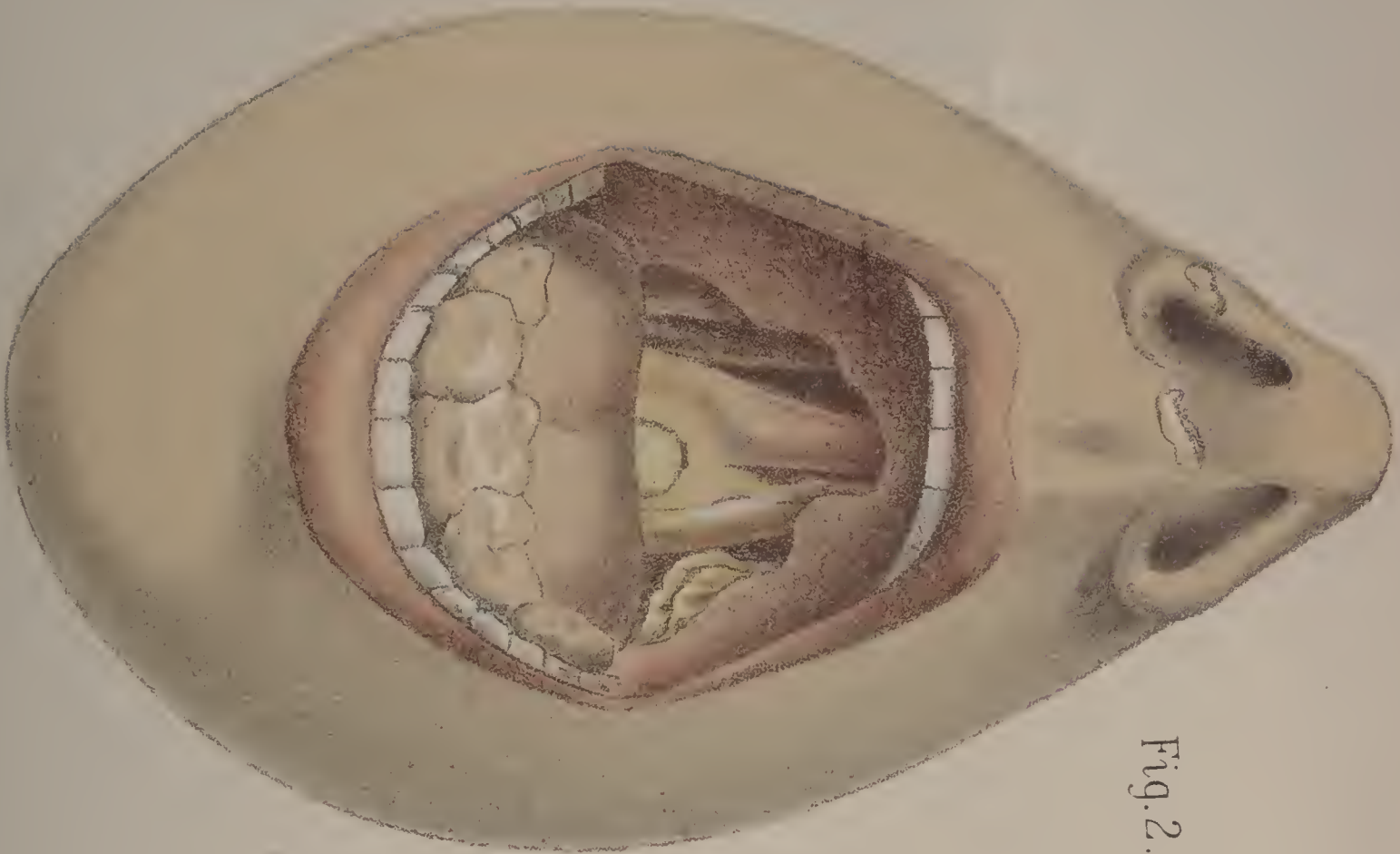


Fig. 2.

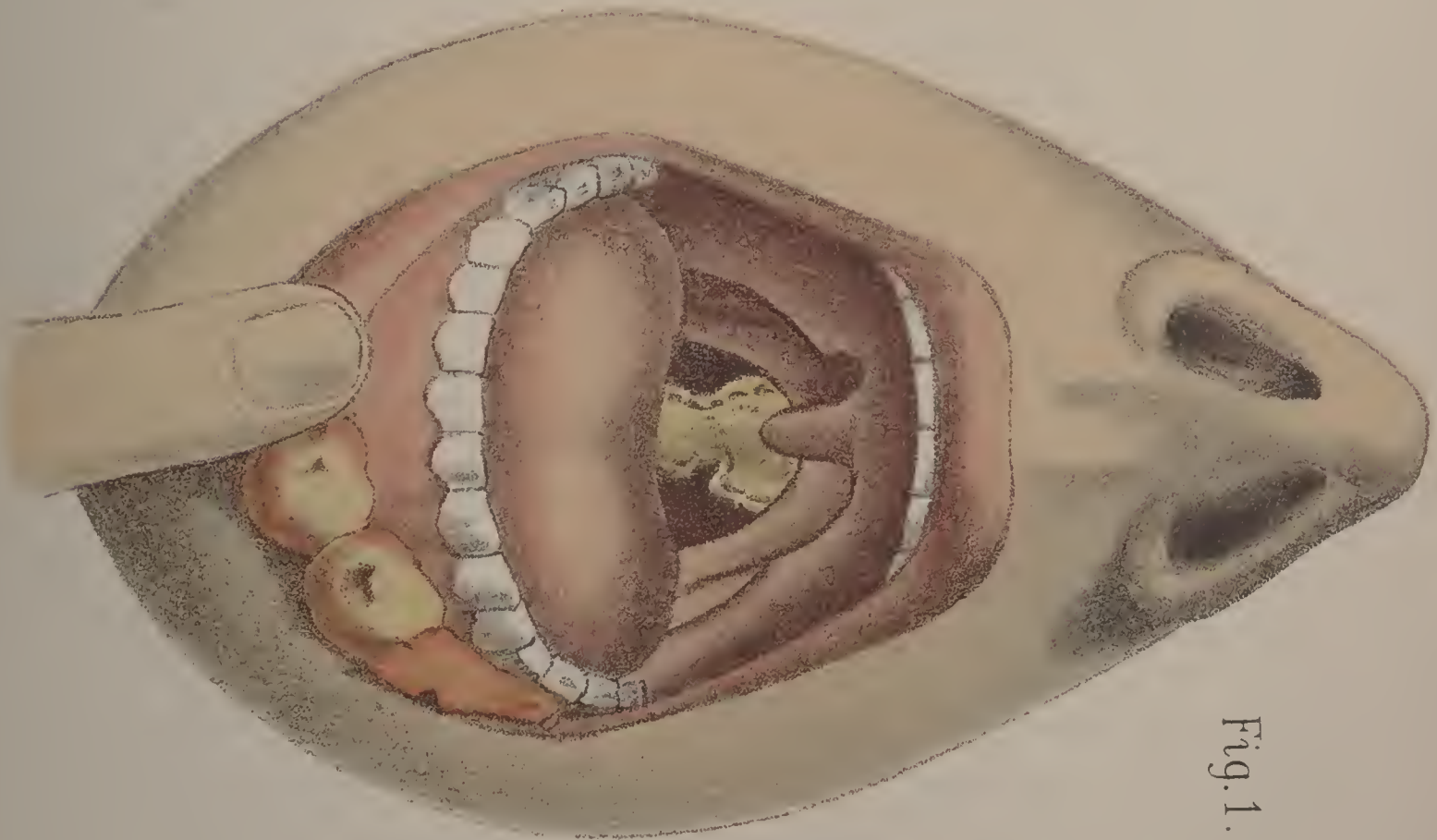


Fig. 1.

The mucous membrane of the private parts of both sexes is just like that of the mouth and throat, and subject to similar inflammations and discharges. But these inflammations of the private parts, instead of being produced by change of weather, etc., generally result from the application of the specific poison or germ-microbe of gonorrhœa. When a woman abandons herself to unlimited intercourse with different men, the private parts become stimulated to so unnatural an extent, that the secretions of the parts, which are largely augmented, at length become altered in their nature, acrid, and finally poisonous, — so acrid and poisonous that they cause inflammation of the parts, and when brought in contact with the male organ, in the sexual act, they poison and inflame that. The specific germ of gonorrhœa is called the gonococcus.

This is the shortest and plainest explanation I can give of clap. From this explanation, one may learn why a man will sometimes take a disease from a woman who has never had any evidence of being diseased herself. If she have indulged her sexual propensities unreasonably, though not enough to produce inflammation upon herself, her secretions may yet have become acrid enough to poison one whose organs are delicate and sensitive. And more than this, — the secretions of a female may become acrid and poisonous from other causes than excessive venery. The discharges in bad cases of whites will sometimes irritate and inflame the male organ, and induce a disease which has every appearance of gonorrhœa. A husband, in great distress of mind, sometimes submits a case of this sort to the physician's inspection, and lays upon him the delicate and responsible duty of deciding whether the wife has been unfaithful. No act in a whole professional life can be more momentous than a decision of this sort. If a man be well skilled in his art, he may give an answer in such case, which shall dispel the most terrible apprehensions, and save the peace of a loving family.

The poison, when communicated by a diseased person to the male or female organs, requires a certain time for the germs to produce their peculiar effect, — generally from three to eight days.

Symptoms. — The first *symptom* of the disease is uneasiness in the end of the penis, accompanied, generally, with a little redness, and difficulty in passing water. The color of the first discharge may be white or straw-colored. There is tenderness where the parts are red. Scalding in passing water is sometimes, not always, present at first.

This is the beginning, or first stage of clap. Now is the time to cure it easily. But, unfortunately, the physician seldom sees a case in this early stage. Before he is allowed to inspect it, the second stage has generally appeared, which is known by violent scalding when water is passed, by chordee, or painful erections of the penis, and by an increased discharge of greenish matter often tinged with blood, and coming from much farther down the urethra, or water-passage. The matter sometimes comes from as far down as opposite

the scrotum, or bag which holds the testicles. There is more or less pain the loins and back. The whole body of the penis may become affected, and abscesses form.

A third and more terrible stage of the disease begins when the inflammation has reached the lowest part of the water-passage, just where it enters the bladder. Around this part of the passage, and lying upon the bladder, is a gland in size and shape like the largest chestnut. It is called the *prostate gland*. On either side of it lie the receptacles of the semen, each of which sends its duct into the water-passage. When the inflammation extends through this gland, it irritates the neck of the bladder, and causes a distressing desire to pass water; and from its proximity to the larger bowel, it sends its irritation thither likewise, and impels a terrible effort to evacuate the bowels, called tenesmus. It is the same awful feeling experienced in dysentery. Few things can be more terrible than these two distressing feelings conjoined, — the desire to pass water and to empty the bowels. Racked with terrible pains and awful tenesmic distresses, and often with painful erections, the patient passes back and forth between the bed and stool, — often vowing in the sincerity of his heart, that if he can but recover from this, he will never be caught again. The enlargement of the prostate gland may become chronic and permanent, and be the affliction of a man's life.

Stricture. — One of the most troublesome and persistent consequences of gonorrhœa is a partial closing up of the water-pipe, attended generally by quite a serious obstruction to the passage of the water. It is called *stricture*. The mucous membrane which lines this passage, being long inflamed, becomes thickened and less pliable or elastic. The tissues which lie underneath this membrane also become swollen and hardened, and, pressing upon the water-passage, lessen it still further, making the stricture more difficult of cure.

In stricture, the stream of urine is altered in size, length, and force. Its course is changed, when the stricture is lateral. The stream is often flattened, like the blade of a pen-knife, or twisted like a gimlet, or forked, one stream reaching beyond the other. In consequence of obstruction, the bladder is not entirely emptied, and the desire to urinate immediately returns, and is very urgent.

Gleet. — Another very troublesome result of gonorrhœa is *gleet*, — a thin, colorless discharge, which persists, in a chronic form, after all active inflammation has subsided. It is very annoying, and very obstinate. It is often dependent on the altered condition of the mucous membrane occasioned by stricture.

Orchitis. — Another very severe result of clap is swelling of the testicles, called *orchitis*. It begins frequently with chills and fever, with a feeling of weight in the scrotum, and pains in the loins. The swelling rapidly increases, and reaches its height in from three to five days.

Besides the above, there are still other mischiefs which follow this disease, such as inflammation of the prostate gland, already described, of the bladder, and of the kidneys.

In the female gonorrhœal inflammation affects the external genitals called the vulvæ, the water-pipe, the vagina, and the neck of the womb, and often plays havoc with the ovaries and Fallopian tubes. In women the disease is often fatal by ascending the tubes and penetrating to the abdomen, where an acute peritonitis is set up, with the formation of pus.

There is a difference of opinion as to whether gonorrhœa ever produces secondary or constitutional symptoms. Ricord, the great French authority on this subject, affirms, and with him a great number of followers, including most of the profession in this country, that constitutional symptoms never follow clap; that they never result from anything but a *syphilitic ulcer*. Vidal, a French authority, safer, in my judgment, than Ricord, though not as renowned, says, on the contrary, that secondary and tertiary complaints do follow virulent gonorrhœa. Wilson, the highest English authority, and many others, agree with him. Unprejudiced observers feel well convinced that this latter opinion is right. I have myself seen not less than half a dozen cases of secondary and tertiary syphilis, which were preceded by gonorrhœa, and nothing more.

Treatment.—One treatment is by injection in the early stage. It is not often used except by a physician and consists of the injection of *nitrate of silver* in weak solution carefully used ($\frac{1}{2}$ grain to 2 ounces) or some other silver salt such as *argyrol*, 20 grains to two ounces injected in teaspoonful doses twice a day. Argyrol is less irritating, less astringent and fully as efficacious as silver nitrate.

The physician should have entire control of the patient, and compel him, if possible, to keep his room, and live for a few days on crackers and water, or something equally simple. All meats and stimulating drinks are to be excluded.

The other mode of treatment, which is perhaps the more commonly adopted, is more general in its nature. It embraces the use of warm baths, warm sweating drinks, and rest. If the patient is full of blood, and strong, from five to fifteen leeches are applied to the space between the scrotum and fundament. These things, with a low diet, will frequently reduce the disease in a few days. If the discharge should continue, after a fair trial of the above, then copaiba and cubebs (272) are to be used. Several articles are added in the above prescription, to make the copaiba acceptable to the stomach. This preparation can be taken by most persons, and generally produces very gratifying results. Vidal strongly recommends an electuary, or thick paste (273), of which a piece twice as large as a nutmeg is to be taken in the course of the day. The prescriptions which contain copaiba and cubebs are numerous; but the above two are as good as a hundred. With these articles, the baths, the leeches, and the repose, are to be united.

Vidal says he never resorts to injections first, but employs the anti-inflammatory course first. If that fail, then he uses the injection (207), three or four times a day; and if he employs the nitrate of silver at all, it is only as an astringent (208). Prescription (304) is a valuable injection.

When the second stage sets in, and the symptoms become more violent, injections must not be used. For the very severe scalding in passing water, which is now felt, take thirty drops of a solution of potassa in half a tumblerful of water, twice or three times a day. Persons of full habit, may be benefited by dissolving a grain or two of tartar emetic in a tumbler of water, and taking to the extent of producing a little nausea. Relief is occasionally obtained by holding the penis for some time in warm water.

For the painful chordee, or erections, camphor and opium (120) are required, — from one to three pills a day. Thirty drops of laudanum may be given when the patient retires. Cold applications to the genital organs, or walking barefooted upon the cold floor, will frequently give relief. When other things fail, three pills a day may be taken of extract of hyoscyamus, containing from one to four grains each. The quantity of drinks must be diminished, and cold lotions must be applied to the penis on going to bed, — the patient covering himself lightly.

It must be borne in mind that the quacks depend on strong injections to stop the discharge, but they almost invariably cause stricture which is worse than the original disease and that the average time that will elapse before a cure is effected may be from four to six weeks.

Gleet is generally very obstinate, and often requires a very protracted treatment. If there be any tenderness along the under side of the penis, it is well to apply three or four leeches. Occasionally recipe (272) will have an excellent effect. But gleet is an unhealthy action, sustained by habit, and may often be cured by simply exciting a new action which shall break the old habit. It is always well, therefore, to resort to injections. Sugar of lead and sulphate of zinc (207) answer a good purpose; or sulphate of zinc and tannin (209) may be tried. Chloride of zinc (210), does well in some obstinate cases.

But gleet is often dependent on *stricture*, and when this is the case, we must learn the location of it by exploring the water-pipe with a bougie. When the instrument reaches the constricted part, the patient feels pain, or the surgeon meets an obstruction, — often both. When the stricture is found, it is either to have the solid nitrate of silver applied to it with an instrument called the *porte caustique*, or a *solution* of nitrate of silver (211), or of acid nitrate of mercury (226), with a shower-syringe. When these means fail, we must pass a small bougie gently through the stricture; then a larger, and then a still larger one, until the obstruction be removed. They should be used once or twice a day, and not be retained long in the passage. They frequently have to be used ten or twelve weeks, and should

not be discontinued till the cure is complete. Put no confidence in those quacks who promise to cure these old troubles in a few days. They want your money, but have no expectation or ability to cure you at all.

For inflammation of the testicles, apply leeches at once. To this should be added warm fomentations and poultices. If these means fail, more serious measures are to be adopted, which it would be out of place to describe in this book.

Inflammation of the prostate gland is also to be treated with leeches and poultices; likewise a warm hip-bath. The water must be drawn off with a catheter until it can be passed in the natural way.

Prevention of Sexual Diseases.—I have several times been in doubt as to the best method of presenting some of the topics which the wide scope of this book has brought before me; but no one subject has perplexed me like the one announced in the above heading,—not that it is not easy enough to furnish the rules for preventing venereal disease, but that it is a grave question in morals whether to instruct the world in the methods of such prevention is right. Is it proper to give any other advice than the simple direction to abstain from all liability to disease? That is the question.

If such advice would be heeded, of course no other should be given. But it would not. If the person disregarding it would alone suffer the penalty of the transgression, it might then be best to embody the whole advice in the simple imperative word, *abstain!* But this cannot be. The infection will be imparted to a third person, and onward to thousands; and many of these thousands will be innocent wives, who will perish of the disease, or send the infection down to the second, the third, the fourth, and to all generations! While a strict morality might seem, therefore, at first view, to forbid the inculcation of rules for avoiding infection, the good of the race would appear to justify and require it.

The first requisite for prevention is cleanliness. Frequent washing is of prime importance.

The precautions should not be the same before and after the venereal act, when a person is about to expose himself to risk. Before the act, the parts should be carefully examined to see if there be any break in the skin. The least breach in this covering of the penis greatly promotes contagion. Before coition, there should be no washing with soap, for this deprives the parts of the mucus and oil,—thus rendering the naked and exposed skin liable to infection. On the contrary, to apply a solution of alum, tannin, or a decoction of oak-bark, or aromatic wine, constringes or hardens the covering of the organ, and renders contagion more difficult. An article called condom is often used to ward off disease. It is a sack made of gold-beater's skin, and is drawn over the penis like a glove over the finger, and thus protects it from contact with poisonous matter.

Of still greater importance are prompt measures of prevention *after the act*. Lotions should be immediately applied to every part of the organ, and in the case of females, should be used as injections. These lotions should be acids or alkalies. A mixture of vinegar and water has been recommended as an excellent wash. Ricord recommends aromatic wine; Malapert, corrosive sublimate (212), in the form of solution. Probably the best preventive is composed mainly of alcohol and soap (213), as recommended by Langlebert.

An exposed person, using any one of these solutions, particularly the last, or, in the absence of all these, washing thoroughly with soap and water, will be likely to escape contagion.

Medical Police. — What is called general prophylaxis, or prevention, or medical police, is not a subject of legislation in this country. The moral sense of the American people does not admit its necessity. In Europe, the authorities watch over prostitution. They even go so far as to regulate it. They appoint practitioners, whose duty it is to act as a sort of medical police, and particularly to visit houses of prostitution once or twice a week, and examine all the inmates. When a girl is found diseased, she is immediately removed to a hospital, and not permitted to return until she is well.

Self-Pollution. — *Masturbation.*

THERE is probably no vice to which so many boys and young men, and even girls and young women, are addicted, and from which so many constitutions break down, as self-pollution. Small boys and girls learn the vile practice of the larger ones at school, and generally continue it up to maturity, without the least suspicion that they are inflicting upon themselves either a moral or a physical injury.

This comes of the false modesty and bastard morality which withholds from the young all knowledge of the proper functions of their sexual organs, and of the inconceivable mischief resulting from their abuse. A gentleman of distinction lately said to me: "I instruct my boys as faithfully on this subject as upon any other moral or physical question, and I tell my wife it is her duty to do the same with the girls." This is wise. Yet, how few parents ever speak to their boys or girls on the subject, to give them the least reason to suppose there is any better rule for their conduct than their own desires!

Symptoms. — These are very numerous. The principal are, headache, wakefulness, restless nights, indolence, indisposition to study, melancholy, despondency, forgetfulness, weakness in the back and private organs, a lack of confidence in one's own abilities, cowardice, inability to look another full in the face, and, among females, hysterics, whites, and a desire for seclusion from society and solitude.

I have already spoken of the receptacles of semen, lying on each side of the prostate gland. From the fore part of these receptacles, the semen passes through two ducts, about a finger's breadth in

length, into the urethra or water-pipe, just in front of the prostate. From excessive self-pollution, these ducts become very irritable, and also debilitated and relaxed,—so much so that they will not retain the semen; and during lascivious dreams, it flows off. These seminal losses are called “nocturnal emissions.” So constant is the drain they keep up upon many young men who have abused themselves excessively, that the whole man, mentally, morally, and physically, becomes a wreck. There are few objects more pitiable to behold than a young man in this condition,—his nervous system feeble, tremulous, and broken; his memory weakened and fading out; his eye unsteady and incapable of looking a friend in the face; his loins and back weakened, giving him the feeble gait of old age; his once erect form cowed and bent; his high sense of manliness all oozed out of him; his mind taking up and dropping the simplest threads of thought, losing its way in the plainest paths of reflection, and often starting back affrighted at the glimpse of chaotic insanity opening before him,—turning here and there for relief, but finding little hope of recovery, except in marriage, and yet knowing himself unfitted to be the husband of an intelligent woman!

Treatment.—Every kind of treatment, no matter how judicious or well applied, will be unsuccessful, unless the vice which has produced the disease be absolutely and entirely abandoned. This is the first thing to be secured. It may be extremely difficult for the patient to do this, with his mental and moral nature all broken and in ruins,—with no heart to feel, nor will to execute; and yet it must be done, or a cure cannot be effected.

To bring this about, everything must be done by the physician to strengthen the moral nature of the patient, and to raise his self-respect and hope. The most careful directions must be given for restraining the imagination. The patient must be directed and encouraged to drive out from the mind, instantly, and upon all occasions, every lascivious thought; to cultivate the society of the most intellectual and virtuous females; to make himself *busy* with useful and, if possible, *agreeable* employment; to avoid solitude; and to sleep with some friend. He should sleep on a mattress, and never on feathers; always on the side, never on the back.

Where there is considerable debility, tonics will be required, as the mineral acids (60), (62), (78), and bitters (77), (67), (66), (59), and strychnine (83), (95), (85), and iron (80), (93), (72), (73), (71). In addition to some of the above preparations, the syrup of the hypophosphites should be taken for some time.

The food should be nutritious and easy of digestion, and the cold alkaline sponge-bath should be taken once a day, with brisk rubbing; and the private parts should be washed daily with cold water, especially just before retiring.

In conclusion, I say emphatically to parents, do not let your sons and daughters remain ignorant on this subject. It is plainly your

duty to enlighten and to warn them. It is a matter in which young persons are generally disposed to do right, if rightly instructed. Avail yourself of your right to give counsel, and, if need be, to use authority.

Says Ware: "The deleterious, the sometimes appalling consequences of this vice, upon the health, the constitution, the mind itself, are some of the common matters of medical observation. The victims of it should know what these consequences are; for, to be acquainted with the tremendous evils it entails, may assist them in the work of resistance.

"To you, parents, on whose shoulders is carried the weighty responsibility of rearing your children in a pure atmosphere, let me say that to shut your eyes against the probabilities of youth is an error and a sin. Let the mother learn to know the restlessness and activity of youth; let the father recall his early ambitions, his longing for excitement, and his reaching out after life and activity in various ways. Do not repress these natural instincts, but learn to guide them into proper channels. Keep at home the attractions of public places; have music and games, mirth and gayety; invent amusement and mirth, and banish dullness and apathy. Do not argue that your boy is better than other boys and your daughter superior to your neighbor's frivolous girls. The boys and girls guilty of this vice are somebody's children, and these somebody's children are nine to one your children. See that your children lead an active, physical life, that out-door games and gymnasium exercises enter largely into their lives; keep them busy, give them something to do to occupy their attention beside their studies; let them study with a will when they study, and play equally hard when they play. Do not be afraid to talk on these matters with your children, and explain in a rational way what passion is, and how it is to be governed and how used. If you have that unfortunate amount of prudery and false shame so common to many people, and feel you cannot talk with your children about such matters, send them to your family physician and let him have a plain honest talk with the children. 'Well stated information never yet contributed to human inflammation.' Read them Storer, Ware and Wilder on 'What Young People should Know,' and make them realize that a 'healthy knowledge is the best preventive against an unhealthy ignorance.' Do not wait till the young have already grown up in the vice, — your admonitions may then be too late, — nor fancy your children have not been thrown in with influences which corrupt, and that by broaching the subject to them you are informing them of a subject they may never otherwise have heard of. Remember the statement: 'whether or not we ought to hide this subject from the young, if we could, the truth is, we cannot if we would.'"

To you, young men, in particular, let me warn you against a seeming propriety on your part to keep your silence. If you are given

to the habit, however slightly, go to your father, your mother, your family doctor. Confession will strengthen your will and purpose to overcome the temptation. Do not lie to the family physician in his inquiries: he is your friend and wishes you only success; he is acquainted with these ailments and knows your temptations; he appreciates and respects your noble desire to rid yourself of the evil.

Do not, above all else, read the numerous pamphlets on Sexual Debility, Lost Manhood, etc., or be duped into answering advertisements in the public prints offering to send you literature on the subject. No man can afford to send you free publications and postage-stamps unless he sees as an outcome a fee at the end of the book in the shape of medicines and other promised help. Steer religiously clear of these smoothly written books and these specialists in the art of restoring lost manhood. Your experience with them will be much like the countryman with bunco-steerers.

Make every honest endeavor to conquer an unruly passion while it is young, and the more readily conquerable, but never despair of being helped by suitable aid, however long the passion may have been victorious over you. Do not ascribe your weakness in fighting temptation to the Almighty, the sins of your parents, or the example of your elders or associates, but go at the demon with a will and the fight is yours. Having conquered the enemy, the results of the past can be overcome by a pure life and the dictates of your physician; nay, I may even add, Nature restores herself if only she can be assisted. In fact there is no specific for the troubles that arise from this vice. The only cure is to absolutely stop the habit and immediately thrust out all lascivious thoughts as soon as they enter the mind. Build up the strength and in time nature and marriage will do the rest.

FEMALE DISEASES

Giving a full and detailed account of female complaints and diseases — their cures and home administration of medicine. Every woman should become thoroughly conversant with these chapters.

FEMALE DISEASES.

IN addition to the diseases common to both sexes, women are subject to a class of distressing complaints peculiar to themselves, and denominated, in general terms, female diseases. Involving considerations of a delicate nature, these complaints have too generally and too long been shut out from works intended for popular distribution. Hence there is a general ignorance of a class of diseases which are fast unfitting woman for the high duty of continuing the race; and the subjects of these maladies are generally themselves so uninformed of the true nature of their sufferings, that they are neither prepared to seek relief in the proper direction, nor to submit to the remedy if it chance to be proposed.

It is intended here to speak of these disorders, as I have done of all others, in a plain and simple way, to describe them, so far as the present state of medicine permits, just as they are, and to make known the modes of treatment which have been found available for their cure. The sufferings of woman require this; the interests of humanity require it; and the writer is impelled to it, as he thinks, by a just sense of responsibility.

Physicians, in my judgment, are chargeable with a great wrong in concealing within their own breasts information upon what are called delicate subjects, — information which the good of the world requires should be divulged, and which they ought to pour into the public mind, and make common, and which they would thus popularize, but for their stiff pride and conservatism.

The idea that our knowledge cannot be imparted to the world without injuring the public morals, is simply absurd. We are more afraid of bringing the common people too near to us, of letting down our dignity, and of opening our profound secrets to popular eyes. The result is as it should be, that unsophisticated people are apt to give physicians a wide berth, and to have nothing to do with them unless necessity compels. Let doctors strip off their reserve, and while they remain gentlemen, become likewise companions, imparting their knowledge freely and familiarly to all, and the public confidence, now considerably shaken, will be frankly restored to the profession.

It should be the object of a good physician to know all he can, and

to impart his knowledge to as many as possible. Knowledge is not merely power: it is happiness, it is wisdom, it is health, it is virtue; yes, it is always virtue, except in some rare instances, where the worst natures pervert it. No physicians are so much loved as those who are frank, and have no concealments. The day for mysterious nods of the head, and rollings of the eyes, and shrugs of the shoulder, has gone by. Men, and women too (or those of them who are wise), wish to know distinctly what their diseases are, and what is necessary, not to palliate and prolong, but to cure them.

Time when Female Diseases Begin. — Female complaints begin to make their appearance at the period of life called puberty, — the time when the girl passes from childhood to womanhood. This is the period when *menstruation* is established, which consists of a discharge from the genital organs, composed of blood and mucus, and which occurs, when regular, every four weeks. Up to this period, the system of reproduction has remained dormant. By the intervention of this mysterious function, the young female becomes a new being. The heart unfolds itself to new emotions; the mind assumes a solidity before unknown, and even the body acquires beauty from a sudden rotundity of form.

This is the period when the great question of female health is very apt to be settled once for all, and for life. The girl who is well trained at this time, generally has a foundation laid for health and character, which is worth more to her than riches. At no time does the mother need so much wisdom and knowledge as now. To establish the health and develop the affections of the daughter at this critical period, is a sacred trust which she can devolve upon no other being; nor can she meet her responsibilities at this time, unless better informed than most mothers are. The general apathy in regard to this maternal duty is deplorable.

False Delicacy. — The refined delicacy which withdraws these subjects from the public gaze is commendable, for it casts a beautiful charm over society; but when carried so far as to cast a veil even over the eyes of mothers, it is quite unnatural, and leads to the worst results; for in the bad management of girls at this critical period is laid the foundation of so many of the diseases which shatter the constitution of so many women. For this bad management, it is not mothers alone who are to be blamed. The neglect of the medical profession to furnish the necessary information should come in for its full share of reproach.

The Establishment of the Menses. — Nature always comes slowly and by degrees to the inauguration or establishment of any of her great functions. It is so in regard to menstruation, or, as it is variously called, “the menses,” “the courses,” “the change,” etc. For some time before the flow begins, there are certain symptoms, or premonitions, which to the eye of the physician plainly enough foretell

the impending change. To the mother these signs would be equally intelligible, were she as well informed as she should be. It is plainly her duty to be intelligent enough to assist nature in the establishment of this important function. But how often, either from ignorance or from false ideas of delicacy, does she fail to interfere, and allow the daughter to be taken by surprise, and perhaps frightened and thrown into convulsions!

From inquiries made of about one thousand women, a distinguished English physician found that about one-quarter were unprepared for the appearance of the menses. Some of the girls were frightened and went into hysterical fits; others thought they were wounded, and washed with cold water. The flow was stopped in several cases, and in some never restored; while the health of all in whom it was interrupted was seriously impaired.

Symptoms of the First Menstruation. — A variety of symptoms precede and foretell the first menstruation. Headache, dizziness, sluggishness of thought, and disposition to sleep; these occurring in a girl, may be taken as hints that the “change” is at hand. If to these be added pains in the back and lower limbs, the intimations will be still more significant.

At this time a girl loses a relish for the society of children; she is apt to acquire a taste for solitude; her temper becomes wayward and fretful; her eyes acquire a peculiar lustre; she becomes a sort of mystery to her friends and herself; not her physical frame only, her whole character is changed. She is about stepping into a new life. Her emotions, thoughts, anticipations, retrospections, are all new to her, and her outward manifestations are new to her friends. An intelligent mother will not fail now to prepare her mind for the important event close at hand.

The age when this change takes place depends very much upon a variety of circumstances. It occurs much earlier in warm than in cold climates. It is hastened by high living; by the whirl and bustle and excitement of city life; by reading novels which are full of love-incidents; by attending balls, theatres, and parties; and by mingling much in the society of gentlemen.

Early Menstruation not Desirable. — It is a law, both in animal and vegetable life, that the later the period at which maturity is reached, the greater the solidity of the body, and the longer it lives. Girls who menstruate early do so because the body is weakened by climate or luxury, and the nervous system unduly developed by excitement; while those who come late to womanhood have firmer constitutions, enjoy better health, and live longer. Those mothers, therefore, commit great errors, who are anxious and administer “forcing medicines,” because their daughters do not menstruate at fourteen or fifteen. If girls are suffering from no special ill-health, no anxiety need be felt if “the custom of women” do not come to

them till the age of eighteen, or even twenty. The delay should excite thankfulness rather than regret. It shows that the constitution has not in it the seeds of early dissolution; that it is fortifying itself against future disease.

Girls who come thus tardily to maturity are much more "regular" in after life. They bear children with fewer accidents, and are afflicted much less with female diseases. The duty of mothers is plain: it is to bring their daughters forward as late as possible, by refusing their early admission to society, by withdrawing from them all exciting reading, by prohibiting their early attendance at parties and theatrical entertainments, by prescribing for them the most unstimulating diet, and by requiring a large amount of exercise in the open air.

A wide investigation has shown that the first menstruation occurs, in hot climates, at the average age of thirteen years and nineteen hundredths; in temperate regions, at fourteen years and seventy-four hundredths; in cold latitudes, at sixteen years and fifty-three hundredths. Under the hot-house culture of modern society, and especially among the wealthy classes, where indolence, luxury, and excitement unite to weaken the constitution, this change is constantly occurring at a more tender age.

How Female Diseases are Induced. — All living things have their origin in *germs*. The germ from which the higher animals spring, man included, is an *ovum* or *egg*. Every animal and every vegetable is provided with an organ for the production of germs. In woman, this organ is called an *ovary*. There are two ovaries, about half an inch in length, one lying on each side of the womb, to which they are attached by ligaments or cords. The ovarian bodies contain vast numbers of vesicles, or cells, or eggs, which are the true germs of human life, and the only sources from which it can spring.

Between the ages of fourteen and forty-five (speaking in general terms), every healthy woman matures and deposits an ovum once in twenty-eight days. This vesicle, some time before the monthly flow, begins to germinate and swell, and after a time, like a grain of wheat in the earth, it bursts its covering and springs forth. It then passes through what is called the Fallopian tube into the womb, whence it is cast off.

During the swelling and bursting of this vesicle or germ, the vessels of the ovaries and womb, and particularly of the membrane lining the womb and its neck, are so crowded with blood as to produce in the parts a state of congestion. If the parts be examined with a speculum at this time, they will be found red, sensitive, and almost inflamed. So great is this congestion, that the woman often complains of pain in the ovaries and the womb, and a general sense of heat, aching, and dragging down in the lower part of the bowels. The pain often extends to the back, the groins, and the thighs.

This Condition Repeated Every Month. — When we consider that this state of things is repeated every four weeks, and that the congested or crowded state of the vessels begins some days before the monthly flow, and lasts, in all, some ten days, making about one-third part of every month, we need not wonder that inflammation so often supervenes, with all its attendant ill-health and suffering.

Increased by Various Causes. — If we reflect, further, that this congestion is increased, among the wealthy, by high living, and among all classes, by over-stimulation of the nervous system, and by the lascivious morals of the age, we see stronger reasons for expecting — what is really occurring — a continually increasing amount of suffering from female diseases.

And when we know, still further, that American females are careless of their health; that they often attend balls and theatres at the very time of suffering from this monthly visitation; that they frequently wet their feet, and otherwise expose themselves to colds, we cannot feel surprise, even when we learn that from one-half to three-fourths of all women in cities, and quite a large proportion of them in the country, have inflammation of the ovaries, or of the womb, or of the neck of the womb, or suffer some of the forms of displacement of this latter organ.

Child-Bearing. — The inflammatory state of the uterine organs is often induced by injuries received in child-bearing, and by excessive indulgence in sexual pleasures.

Weakness of the Sexual System. — The womb, moreover, like any other organ, may be naturally frail, and easily affected by disease. This weakness of the sexual system is indicated by the difficulty with which menstruation is established, and the presence of the whites, both before and after each monthly flow. Women in whom the generative organs are weak, are much more liable to inflammation of the womb, and to all complaints peculiar to the sex.

Description of the Sexual Organs. — Before describing the particular diseases to which the female generative organs are liable, it is proper to give the reader a brief description of the chief of these organs.

The Womb itself, in its healthy, natural state, is about two inches long, and one inch broad — weighing a little more than an ounce, and is in shape like a pear. It is lined with a mere rudimentary mucous membrane.

The Neck of the Womb has a cavity distinct from that of the body of the organ, and is lined with a mucous membrane well supplied with follicles or glands.

The Fallopian Tubes open, one from each side of the base, or largest end of the womb, and extend outward to the ovaries.

The Ovaries are glandular bodies lying one on each side of the base of the womb. They are more particularly explained elsewhere.

Fig. 136 gives some idea of these organs. A, is the body of the womb; B, the neck of the womb; C, C, the vagina; D, one of the

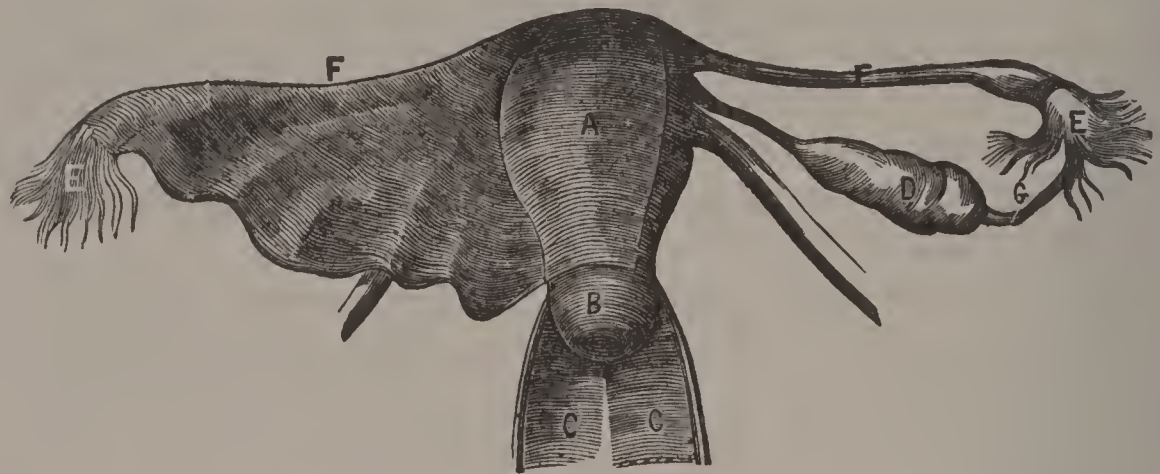


FIG. 136.

ovaries; F, F, the Fallopian tubes; E, E, the fimbriated extremities; G, the small ligament attaching the fimbriated extremity to the ovary.

Inflammation of the Neck of the Womb. — Inflammation of the body of the womb is a comparatively rare disease, but inflammation of the *neck* of this organ is so common that in nearly nineteen out of twenty cases, when females seek relief for whites, for painful menstruation, for stoppage of the menses, or even for what they suppose to be a falling of the womb, a careful examination will show that this pendant portion of the womb is in a state of marked inflammation, or of absolute ulceration. The whites, if they continue without intermission from one menstrual flow to another, are almost always the result of one of these conditions of the uterine neck.

It would surprise most persons out of the medical profession, and many physicians, to know how large a proportion of the more grave diseases which inflict such terrible suffering upon woman, and so completely shatter her constitution, are dependent for their existence upon a simple local inflammation, either in the neck of the uterus, or in one or both of the ovaries. Many a female has for years suffered agonies, greater than those of death itself, arising, as she supposed, from a complication of ills which invade every part of the system, while the whole of her troubles arose, in fact, from an inflammation of the neck of the womb merely.

Difficulties of Studying Uterine Diseases. — The social relations of the sexes, and the great delicacy of the matters to be investigated, for a long time prevented direct examination and investigation, so that little knowledge was gained, and as little benefit conferred.

Fig. 1.

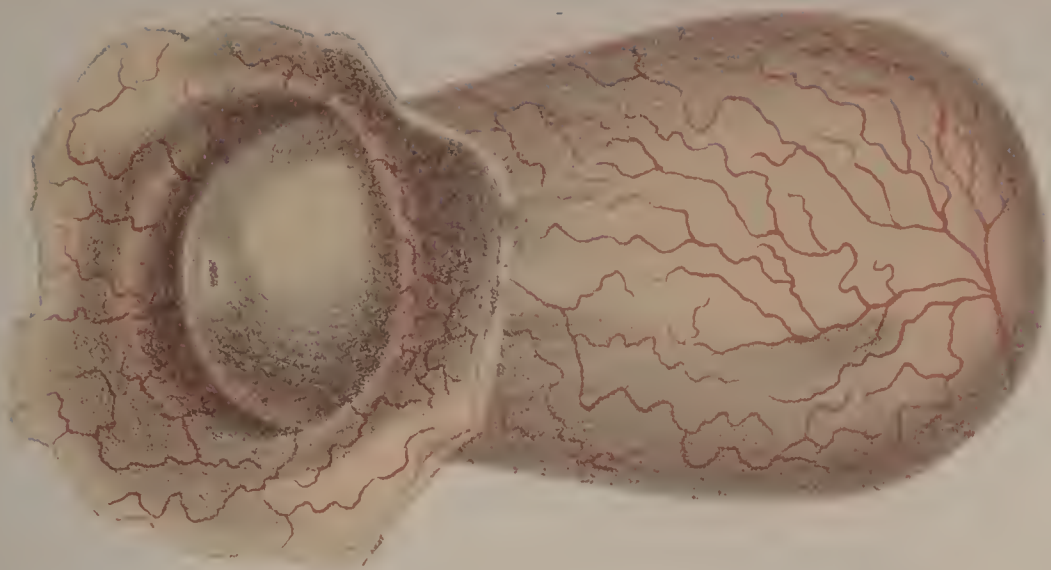


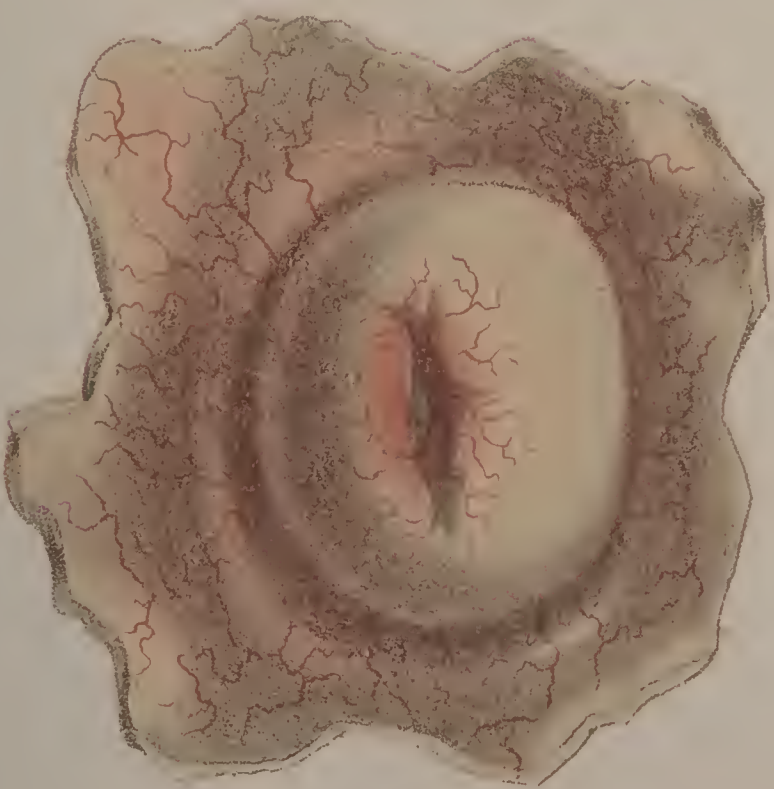
Fig. 2.



Fig. 3.



Fig. 4.



Woman, always distinguished for her modesty, could not be expected to invite investigations which were not proffered, whatever the extremity of her sufferings ; and man, scrupulously sensitive lest he should make himself an intruder by stepping within delicate enclosures, have both, in times past, mistaken their duty by misinterpreting the demands of the highest delicacy.

Needful Examination not Indelicate. — Rightly viewed, no inquiries or examinations are indelicate which are necessary to a full understanding of the nature of disease, and which are made with the sole purpose of rendering its cure possible. I agree with Dr. Meigs, the elder, that the delicacy or indelicacy of examining the persons of females for the purpose of exploring disease, depends on the motive with which it is done. To pure-minded persons, it is never, I think, a source of impurity. On the contrary, the self-restraint, the honorable feeling, and the nice sense of delicacy which it calls into exercise, often heighten the tone of a man's virtue, and certainly increase a true woman's respect for it. Unfortunately, there is now and then a gross-minded man in the profession, who, in these investigations, will violate the most sacred of all trusts committed to his hands ; but such monsters — few in number — soon find their level, and are shunned as the most vile of the race.

It is now so well understood that these investigations do not lead to immoralities, that the most highly educated, intelligent, refined, and virtuous females almost invariably raise the fewest objections to such examinations as a physician of character may propose.

Methods of Investigating Female Diseases. — The symptoms of these complaints will be spoken of in their proper place, as the several diseases come under a brief review. I merely wish to allude here to the methods of physical exploration which modern practice has called to its aid.

The Touch. — These methods consist, first, of what is called the *touch*, which is made either externally upon the bowels, or internally, with the index finger, through the vagina, or passage, from the external genital organs to the neck of the womb.

The Speculum. — In the second place, of ocular inspection of the vagina and neck of the uterus, through an instrument called the *speculum*. By this instrument, the eye, as well as the finger, is made to assist in learning the real condition of the parts.

The finger informs us whether there is any devia-

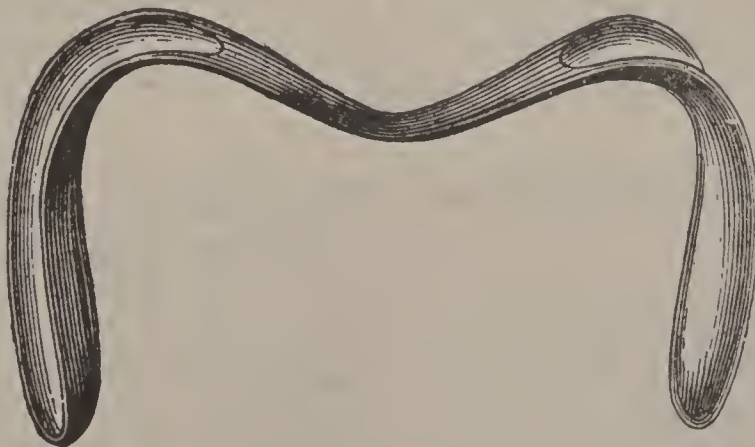


FIG. 137. Sims' Speculum.

tion from nature in the bulk, the firmness, the smoothness, or the sensibility of the parts; while the *sight*, through the speculum, affords absolute certainty as to whether the parts are suffering from inflammation, ulceration, abrasion, or eruption.

There are a variety of specula in use by modern physicians, but all are essentially of two kinds; first, a so-called Sims' Speculum (Fig. 137), the end of which, when inserted into the vagina and pulled upon, allows the air to enter and balloons out the vagina so that the parts can be readily seen. This speculum necessitates what is known as Sims' position, i. e. the woman's hips resting on the edge of the bed or table, knees flexed, and chest resting on bed with left arm out from behind her.

The second variety of speculum is what is known as the duck-bill pattern (Fig. 138). By a separation of the two blades, the neck of the womb slips in between them. The speculum is then fastened with a thumb-screw, leaving the hands of the physician free. This speculum is used with the woman on her back, and feet resting on the bed or table, with knees flexed.

We also give an illustration of an older kind, which is still used to some extent. The end is so shaped as to catch the neck of the

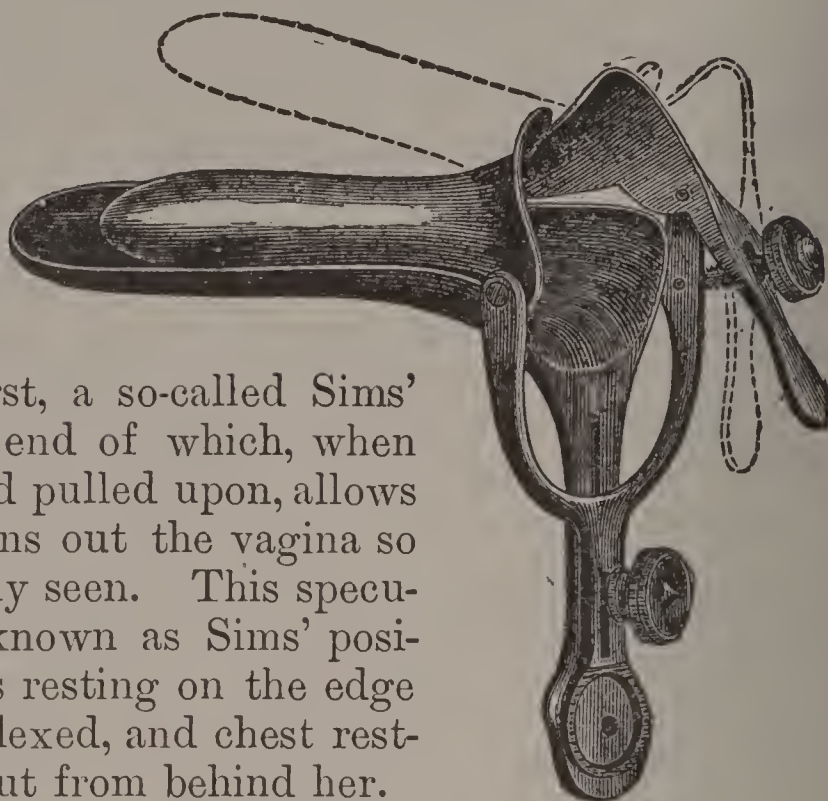


FIG. 138.
Duck-bill Speculum.

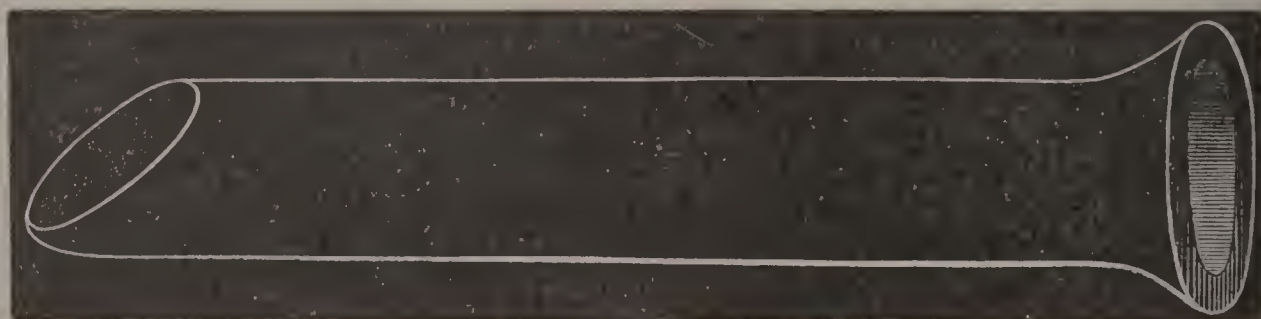


FIG. 139.

womb, and then by drawing the instrument forward slightly, the diseased surface is presented for as perfect inspection as if located externally (Fig. 139).

Inflammation, Ulceration, and Enlargement of the Neck of the Womb.

INFLAMMATION of the neck of the uterus is very common; ulceration and permanent enlargement (technically called hypertrophy), are its results, when it is not arrested in due time. These affections, in fact, and the same troubles as they affect the ovaries, make up the

bulk of female diseases, — being the real causes of the most of those symptoms which have passed under the name of whites, suppression, painful menstruation, sterility, general debility, etc.

The neck of the womb, when healthy, is soft and smooth. No hardness or condensation of tissue can be felt by the finger on pressing over it. It is elastic, too, and feels unctuous to the touch. This latter sensation is communicated by the layer of mucus which covers it. Pressure upon it produces no pain.

Inflammation, when found in this part, may begin in the mucous membrane which covers the neck, or in that which lines its cavity, or in the small glands in the body of the organ.

Symptoms. — Inflammation of the mucous membrane covering the neck of the uterus destroys the unctuous feel which it has in health. It also causes the neck to swell, its vessels being crowded full of blood. If the body of the organ, as well as the surface, be reached by the inflammation, it will be hardened and enlarged; and in consequence of its increased weight, it is apt to drop down somewhat into the cavity of the vagina. In married ladies, it is often, by physical pressure, pushed a little backward, or retroverted. Examination with the speculum shows the inflamed neck to be of a vivid red, instead of a pale rose-color. It may be covered with red or white pimples, which are glands enlarged with muco-pus.

In the healthy state, the mouth of the womb is so much closed as to be just perceptible when the finger passes over it. Inflammation causes it to be more or less open, and its lips to be parted.

Inflammation followed by Ulceration. — In a majority of cases, inflammation of the neck of the womb and of its cavity is soon followed by ulceration, which generally appears first around the mouth, and just within the cavity of the neck. From thence it spreads both inward and outward.

Various Degrees of Ulceration, etc. — Of course, these inflammations and ulcerations mix and run into each other in all possible forms, — presenting excoriations, or raw places; granulations, or pimply surfaces; and indurations, or hardened parts. Sometimes these pimply patches will be red and hard, and again the whole surface will be spongy, and will bleed upon the slightest touch.

In many cases, these ulcerations make wretched work with the mouth of the womb, eating deeply into the cavity, and giving it a ragged and unsightly appearance.

Velvety Feel from Ulceration. — Ulceration generally gives to the surface on which it exists, a soft, velvety feel, which the finger generally recognizes. This velvety sensation, with the open state of the mouth, are the most important evidences we can derive from the touch, of this form of disease.

The Discharge from these Ulcers is always Pus, or, in common

language, *matter*. It is sometimes poured out scantily, at other times very freely. It may be thick and yellow, or thin, and of a lighter color.

The inflammatory and ulcerated condition of the neck of the womb often gives rise to pain; and when the seat of the disease has not been examined, as it should be, this pain has frequently been called neuralgia. In this way, ignorance has compelled neuralgia to stand sponsor for a great many pains with which it has had nothing to do.

These Ulcers Disturb Menstruation.—Menstruation is generally changed more or less in its character by the presence of inflammation or ulceration in the neck of the womb. It usually becomes more *painful*. In some cases it is made more *profuse*, in others more *scanty*. It may come on more frequently, or it may be postponed, protracted, or abridged in its continuance. There is generally pain of a dull, aching kind, low down in the back. There is often a feeling of fullness, pain, and a sense of bearing down in the lower part of the bowels; sometimes the pain extends to the groins and thighs.

Extensive Disturbances from these Inflammations, etc.—The nerves with which the womb is liberally supplied belong to those of the sympathetic system. Hence, the condition of the uterus influences a wide circle of sympathies. By these nerves this organ is brought into close relationship with the organs of animal life. If the former suffer, the latter suffers also. The stomach, being intimately connected with the womb, physically, feels keenly these inflammations and ulcerations of the uterine neck. At times, the pain, debility, general disturbance, and dyspeptic state of the stomach are such as to cheat both the doctor and the patient into the belief that this organ is the seat of the disease. But in such cases, the symptoms of stomach disease will all disappear the moment the local affection is removed from the neck of the womb.

The liver, too, often participates in these troubles, and becomes sadly deranged. It is sometimes even greatly enlarged and congested, and patients frequently have the various symptoms of what are called liver complaints.

Severe pains are sometimes felt under the breast-bone, and over the chest generally, making the patient apprehensive of disease of the lungs; and indeed consumption is not a very infrequent result of uterine diseases.

Pains are often felt in the region of the heart, which organ is often harassed with palpitations.

The flesh is apt to waste under the symptoms excited by these inflammatory and ulcerative processes in the uterine neck; and even the brain, though lying in some measure beyond the circle of influences set in motion by the organic nerves, suffers disturbance and pain.

Even the special senses of sight and hearing may be drawn into this general vortex, and both be much impaired. And to crown this catalogue of ills, it may be mentioned that those distressing things called hysterical fits proceed from the same local disorders.

In brief, there is scarcely a point in the human body to which these inflammatory and ulcerative conditions of the uterine neck may not send their sympathetic pains and aches, and where they may not in time induce real disease. This is the reason why so many women suffering from these local complaints, tell the physician, when consulting him, that they are "*diseased all over.*" If asked where the complaint is located, they will answer, "*It is everywhere.*" In the most earnest manner the assurance will be given, "*Doctor, there isn't any well part about me.*"

Treatment. — It is just as unreasonable and useless to treat these inflammations and ulcerations through the stomach, as it is an inflamed or ulcerated throat. *They are local diseases, affecting a particular part, and the remedy must be local.*

Like all other affections, these can only be managed intelligently after their nature is well understood. Nothing can really be done towards a cure until it is known what the matter is; and no competent physician will move a single step in the treatment of one of these cases until he has made a thorough examination. He owes this to himself and to his patient, the more so as the neck of the womb may be as easily examined as the upper part of the throat, and the local remedy may be almost as readily applied in the former case as in the latter.

If, upon the introduction of the speculum, the uterine neck be found simply inflamed and enlarged, the application of ichthyol and glycerin to the canal will reduce the swelling and inflammation; while a tampon of wool soaked in the same and placed behind the womb will reduce the entire swelling of the womb by the watery discharges which are produced. The patient must learn to lie down most of the time. If this should not succeed (though it will in most cases) then introduce a speculum, and when the neck of the womb is fairly lodged in its extremity, drop in two or three leeches and allow them to fill.

One who is not accustomed to treat these affections in this simple way, will at first be surprised at the rapidity with which the local trouble will disappear, and with it the thousand and one aches and pains which torment the whole body. As the terrible pains in the whole face and head which are produced by a single tooth all instantly come to an end when the tooth is extracted, so do the bad feelings all over the body subside as fast as the local ailments of the uterine neck are cured. There is no exception to this rule, except where the sympathetic affection has become fixed by long neglect of the primary uterine disease. It is, therefore, surprising that so many excellent women, whose lives are of the greatest value to them-

selves and friends, should be permitted to perish of these ailments, when the cure is so simple, and many times so entirely within the reach of the most ordinary skill. It is a reproach to the profession which should be wiped away.

If there are a hundred motives for gaining the mastery over other diseases, there are a thousand for learning to control these. More than any other disease, or all others, they make the homes of men desolate, by robbing them of women, their ornament and solace. The physician who neglects to make himself acquainted with all there is to be known of these complaints, shows himself not only unfit for his profession, but deficient in some of the prime elements which combine to make a true man.

Hardening of the Uterine Neck. — In many cases the uterine neck is not only inflamed and enlarged, it is indurated and hardened. At times it is enlarged and hardened on one side, and not much on the other. In still other cases, there are enlarged spots, or nodes, giving the whole neck a *knotty* feel under the finger.

These hardened conditions of the uterine neck proceed from various causes, and are more difficult to cure than the ordinary inflammation, or even ulceration. They sometimes indicate cancerous disease, and then, of course, involve the most serious considerations. The glycerin tampon and the hot vaginal douche will do more for this hardening than all else combined.

Uterine Syringe. — For applying the several remedies to the internal cavity of the uterine neck, I have contrived a silver syringe, which is bent a little at the extremity, and pierced with fine holes all round. With this instrument, the remedy is carried directly to the diseased part, and applied instantaneously to every side of the cavity.

Besides these local applications, it is frequently necessary to resort to soothing or astringent injections into the vagina, hip-baths, and injections into the bowels, some mild physic, and rest in a horizontal position. These matters will all be judiciously regulated by the attending physician, if he is master of his business.

Inflammation, etc., of the Ovaries. — Ovaritis.

THE inflamed condition of the ovaries is indicated by increased heat, and pain upon pressure. The pain in the ovarian region is sometimes intermittent, sometimes constant, and occasionally passes down to the loins and thighs.

There are acute and chronic inflammations of the organs; but it will be sufficiently accurate, in a work of this kind, to treat of them as essentially one.

The effects of inflammation upon the ovaries, as upon other bodies, are various, sometimes enlarging and hardening, at other times collapsing and blasting them. This last effect, it is hardly necessary to say, cuts off all hope of bearing children.

The Causes of ovarian inflammation are numerous. One of the most important causes has already been noticed, namely, the congestion of the parts, for several days, at every menstrual period. This, amounting as it does almost to inflammation, is often intensified by other causes, such as wetting the feet, taking sudden colds, excessive fatigue from dancing, and exciting drinks.

Sexual indulgence often proves a cause of inflammation in these bodies. It is particularly apt to have this effect in the newly-married female, with whom it is a novel stimulus, and often applied with immoderate excess. In late marriages, when the stimulus to the ovaries has long been denied, its sudden presentation is liable to make an inflammatory impression. Its entire *absence*, too, in persons of strong passions, may result in ovarian disease.

This inflammation may be produced by the new state of things existing at the critical period called *the turn of life*, when it reacts on the womb, producing the floodings which often bring menstruation to a close. The congestion, too, which has been present every month for many years, does not immediately cease at this change; and not finding relief by the accustomed flow, the ovarian bodies are exposed to inflammation.

In all large cities, the pest-houses of civilization, where the women are more numerous than the men, there are many females whose virginity is a burden, and numerous others who give themselves up to sexual excesses; to both these classes, the turn of life is very liable to promote these ovarian disorders.

There is another class of causes, which, though not so easily recognized, are equally cogent in exciting this form of disease. I mean all those excitements which arise from unbridled thoughts, from books of questionable character, from music, social intercourse, and stimulating food and drinks,—all which promote and intensify burning desires, which, though natural and proper in themselves, cannot lawfully be gratified in a community where the female sex greatly preponderates, numerically, over the male. When we consider how powerful within a woman's breast the conflict often is between the impulse of passion and the dictates of duty, and how strongly this conflict must react upon the sexual organs, and especially upon the ovaries, the centre of the sexual system, we can easily see in how many cases they may become inflamed.

Another cause of this disease is suppression of the menses. The engorged and crowded state of the vessels of the womb, of the uterine neck, and of the ovaries, not finding vent in the accustomed flow, inflammation in any one of these organs is a very natural result.

The inflammation of these ovarian bodies is a frequent result, too, of a similar condition, previously existing in the neck of the womb. In passing from the uterine neck to the ovarian bodies, the inflammatory condition often fastens itself upon the broad ligament, the fallopian tubes, and their fimbriated extremities. The whole, it will be

seen, presents an amount of disease which it is painful to contemplate.

The womb being turned over, and pressing against one of the ovaries, may cause it to inflame by mechanical irritation. Pessaries, injudiciously used, may do the same thing.

Symptoms. — The first and most obvious symptom is a pain a little to the right or left of the womb. This pain is almost always increased by walking, riding, or by external pressure. It is especially augmented by straightening the thigh, by which the parts over the inflammation are put upon the stretch. When standing up, ladies suffering from this disease are generally compelled to rest the foot on a stool, so as to bend the thigh, and relax the muscles. The pains radiate from the ovaries, and go down to the loins and thighs, and sometimes to the fundament. They are of a dull, dragging, heavy nature.

Sometimes the ovarian bodies become very much enlarged, and dropping down somewhat, press upon the lower bowel, causing constipation, or upon the neck of the bladder, creating a frequent desire to urinate, and an inability to pass the water freely.

Treatment. — As inflammation of the ovaries is always increased during the menstrual flow, it is not proper to meddle with it at these monthly periods, lest the trouble be aggravated. Immediately after one of the turns has passed, from six to eight leeches should be applied over the diseased ovary. When the bites are healed, a blister may be used in the same place. The scarf-skin should not be removed, and the irritated surface must be healed as soon as possible. The blister should be camphorated to prevent strangulation. The part should next be rubbed for a few minutes, night and morning, with an alterative and anodyne ointment (169).

It is in many cases more desirable to insert a speculum and paint the roof and sides nearest the tender spot with tincture of iodine. There is a strong preparation called Churchill's iodine which is the tincture of iodine to which iodide of potash has been added, and though some greater care must be used when applying it, the results will be more rapid and beneficial. This treatment should be always used instead of the leeches if the patient loses too much blood at the periods.

After the next menstruation, the same things should be repeated, and again after the next, and so on, for five or six months, or even longer, if need be. The already bloodless condition of the patient may require, however, that the leeches should not be applied more than once, or, at most, twice.

The bowels should occasionally be opened by some simple cathartic, for the purpose of removing all hard substances which may press against and fret the inflamed ovaries. The purgatives employed should be of the most cooling kind, such as salts or oil; while aloes, and all harsh cathartics must be avoided.

Injections of tincture of belladonna and hyoseyamus are useful for quieting neighboring parts, and warding off external disturbances. They act like soft substances thrown upon the pavement in front of a sick man's house. A piece of flannel soaked in hot laudanum, laid over the ovary and covered with dry flannel, will give great relief and enable the patient to sleep.

The patient should be kept, as much as possible, in the recumbent position, lying upon the bed or the lounge, and should only be permitted to move about to such extent as will not irritate the inflamed parts.

Whites. — *Leucorrhœa.* — *Fluor Albus.*

LEUCORRHOEA is from two greek words, λεύκος and ῥέω, and *fluor albus* from two Latin words, *albus* and *fluo*, having precisely the same meaning as the Greek, namely, a *white discharge*. Hence, in popular language, the disease is called the "*whites*"; it is also called "*female weakness*."

These terms are well enough, perhaps, if we have in mind that they convey to us only the idea of a *symptom* of disease. They all mean, with the exception of the last, a white discharge from the female genital organs. They are slightly inaccurate, as the discharge is sometimes yellow, or green, or otherwise variant from white. Any discharge from the female genital organs which is *not bloody*, comes under the term "*whites*."

A Symptom Only. — As the name of a disease, the term whites has no specific meaning. It does not designate any particular complaint. It is a symptom, just as the matter expectorated and raised in lung diseases is a symptom; and as such only should it be regarded. When persons cough and *raise* a great deal, they do not, on consulting a physician, say they have got the expectoration; but they say they fear they have some disease of the lungs, because they expectorate. They look upon the expectoration as the *sign* or symptom of disease.

So females, and physicians too, must learn to look upon the *whites*, not as a disease, but as the *sign* or symptom of disease, which sign they should become skilled in interpreting.

There is no reason why the discharge from the genital organs should not be as well interpreted as the expectoration or discharge from the throat. The parts from which it comes may be about as easily and as well inspected.

No Female Ailments so Common. — There are no female troubles to which the attention of the physician is so often called as these annoying and debilitating symptoms called whites; and there is no department of medical practice in which the really able as well as conscientious and painstaking physician is so well tested. If, regarding these discharges as they are, simply as *signs*, he searches

faithfully for their cause, he will be led to a treatment which in a great majority of cases will be successful. And surely no success in life can be more prized by a right-minded physician. It procures health, the highest earthly boon, for suffering woman, and gratitude, the most prized of all rewards, for himself.

There are Four Kinds of Discharges from the female genital organs,—mucus, pus, mucus and pus combined, and the watery. The first, mucus, does not in itself imply disease; but when pus is discharged, we know that inflammation exists, because such a cause alone can produce it.

Seat of the Disease.—The cause which produces the whites may have its seat either in the vagina, or in the neck of the womb; and in practice it is of course quite important to know where its location is. The character of the discharge generally settles this point. If it be thin and watery, or thick and cream-like, it is from the vagina or passage which leads to the womb; if ropy, gluey or albuminous, like white of egg, it is from the cavity of the uterine neck.

Treatment.—Some physicians always prescribe the same remedy for the whites. They might as well have but one prescription for expectoration. The remedy must have reference to the *cause* of the discharge; until the cause be searched out, every prescription is a mere trial at guessing,—a sort of practice well enough adapted to quacks, but not becoming scientific men.

When a case of whites is brought before a physician who understands his business, he makes no prescription until he has discovered what the disease is. Having determined this point, his remedies have an intelligent bearing upon the case.

If the discharge be of a ropy, tenacious character, one of the best remedies is a strong solution of nitrate of silver, used as an injection with a female syringe, once a day (254). Of this, not more than two teaspoonfuls should be used at a time; and great care should be observed not to stain the underclothes with it. When the discharge is either yellow and thick, or lighter colored and watery, some one of the following: (200), (202), (203), (207), (209), (220), (230), (232), (243), (244), may be used with advantage as an injection, twice a day.

Some one of the above remedies will generally afford some relief; but if whites exist in a somewhat aggravated form, they furnish evidence of some serious disease in the vagina or neck of the womb, and the case ought to be submitted to a competent physician.

Absence of the Menses.—*Amenorrhœa.*

THE absence of the menses is divided into two kinds,—*retention* and *suppression*. It is retention when the monthly flow has never appeared; suppression, when, having been established, it is, by one cause or another, stopped.

Retention Explained. — The ovaries, as we have before said, are the centre of the female sexual system. It is the swelling or ripening of an ovum or egg, every four weeks, which causes the large flow of blood to the parts, and the consequent menstrual discharge.

But it sometimes happens that the ovaries are not developed at the usual time of life. The monthly evacuation does not then appear. There is retention. There may be retention, too, from other causes, after the ovaries are matured. Costiveness may sometimes occasion it; so may a degenerated and low state of the blood.

There may be *mechanical* causes of retention. The mouth of the womb may be entirely closed, or the neck may be so constricted as to close the passage through it, leaving no outlet for the monthly accumulation. The hymen, also, may have no opening through it. When these mechanical obstructions exist, there are sometimes large collections of fluid in the womb, which cause enlargement of the body, and in some instances, painful suspicions that the sufferer has committed imprudences, and is in the family way. Physicians should be on their guard against falling into such errors, and lending the sanction of their name to these blasting mistakes.

Suppression Explained. — Suppression — a stoppage after flow has been once established — may be caused by inflammation of the ovaries, the blood, in this diseased condition, being drawn so entirely to these swelling and germinating bodies, that the accustomed flow from the womb does not take place.

Inflammation in the neck of the womb may also cause a stoppage. So may a fright, as from a fire occurring in the neighborhood, or a cold taken by being caught in a shower. Girls sometimes, in their utter thoughtlessness or ignorance, dip their feet in cold water, when their courses are upon them, and bring on a suppression of a most dangerous character. The most lovely and innocent girls have done this for the purpose of attending a party; and, in some instances, the stoppage induced has ended in death within a few hours. The profound ignorance of their own mechanism, and of the laws which govern it, in which girls are kept who are just budding into life, is a serious reproach both to parents and physicians.

Suppression may be induced by whatever reduces the quantity or quality of the blood, as consumption, or by great depression of spirits. With some rare exceptions, women have not their turns while in the family way.

Treatment. — Before anything can be done in the way of treatment, the case must be thoroughly investigated, and the specific cause of the disease searched out.

If it prove to be *retention*, and arises from a bloodless condition and an undeveloped state of the ovaries, iron is the proper remedy (61), (73), (74), (75), with a generous diet and exercise out of doors. If caused by an inflammatory state of the uterine neck or ova-

ries, the proper treatment has been already indicated. If from costiveness, relief may generally be found from prescriptions (5), (9). The mechanical causes alluded to above, when found to exist, must be removed by gently dilating the mouth of the womb or the uterine neck, with bougies, beginning with the smallest, and increasing the size, or by puncturing the hymen, as the case may require. Permanganate of potash, in capsules of 2 grains each, after meals, is one of the best remedies.

In Treating Suppression, it should be borne in mind that at a certain time each month nature makes an attempt to restore the lost function. Even when she is not successful, probably an ovum is matured and in some way disposed of. The intelligent physician will of course avail himself of this favorable moment to try his skill in bringing about the desired regularity. When this time arrives, he should order three or four leeches applied to each groin at night. The next night, he should direct the use of a pungent foot-bath (242); also (16) as a cathartic.

For the relief of the terrible cramp-like pains that accompany this trouble teaspoonful doses of compound elixir of viburnum given in one-fourth glass of hot sweetened water and repeated every hour until relief, may be given.

When suppression exists, it is not always proper to try in this direct way to bring on the turns. There may be no blood to spare; and this may be the sole reason why the courses do not appear. When this is the case, nothing is to be done but to build up the health as rapidly as possible, and when this is sufficiently established, the courses will be all right.

Profuse Menstruation. — Menorrhagia.

MENSTRUATION may *continue too long*, or *occur too often*, or *be too profuse* while it lasts; or all these irregularities may be experienced by the same person. Any one of them will prove a serious irritation, and a drain upon the constitution; the whole together, if not arrested, will undermine and destroy it.

The Cause of this, like the source of all other female diseases, is, in a great majority of cases, overlooked.

It is not to be attributed, as so many suppose, to a congested state of the womb; but is rather the result, in a great many instances, of the inflammatory or ulcerated condition of the uterine neck.

In still another large number of cases, it arises from a succession of *ovarian abortions*. When the blood has run low, and nutrition is defective, as in the consumptive habit, the ovarian vesicles fail to reach maturity. Like other products of the economy, they become blighted, and abort. And as these blights occur often, nature is busy every two or three weeks casting them off. Hence, the menses appear often. They come and go without order, because they spring from a process which is a contraversion of nature's laws.

Profuse menstruation, like scanty menstruation, is a symptom of a variety of diseases. The quantity may be increased only on one or more days, or be so great as to cause death from hemorrhage. At all events, the amount of blood lost is often so great as to cause anæmia and impaired health for a long time. This is, however, usually the result of continued free bleeding extending through a number of months.

The local causes of uterine hemorrhage are fibroid tumor of the womb; inflammation of the womb, or metritis; inflammation of the lining membrane, or endometritis; uterine congestions from any source; cancer of the womb in its early stages; retroversion, or tipping over backward of the womb onto the rectum; polypus; enlargement of the womb following labor or abortion; the retention of placental tissue, etc., etc. These also are among the local causes of hemorrhage. But not infrequently the excess of flow is due to impaired general health. Wasting diseases like phthisis or consumption cause the blood to be so thin as to render it unable to form a clot, thus facilitating the easy or profuse hemorrhage often seen in young girls in the earlier stages of consumption; later, amenorrhœa ensues from utter lack of blood. This flowing often attends acute fevers, purpura, Bright's disease, jaundice, heart-disease and debility. This last cause is often seen in the case of young girls who have grown rapidly since puberty and pursued a vigorous course of study with little or no out-door exercise. The strain on the nervous system in these girls is kept up constantly by sharp competition, and no heed is paid to nature's demand for rest and relaxation at the menstrual time. The claims of society on the young girl add no small share in the production of this evil.

Explanation. — It is not easy to explain how inflammation and ulceration of the uterine neck should in one case produce suppression, and in another profuse menstruation. Yet it is a settled truth that such opposite results do come from one and the same apparent cause. Probably the explanation is to be found in the different degrees of inflammatory action, in the varieties of constitution, and in the variant degrees of tenacity with which the vessels hold the blood.

Bleeding from the female genital organs may be produced by a variety of causes which have nothing to do with menstruation. Such bleedings are properly *uterine or vaginal hemorrhages*, and not profuse menstruation. They are the result of inflammations, or tumors within the uterine neck (Fig. 140), or weakness. The womb may bleed for days, or even months, from pure debility.

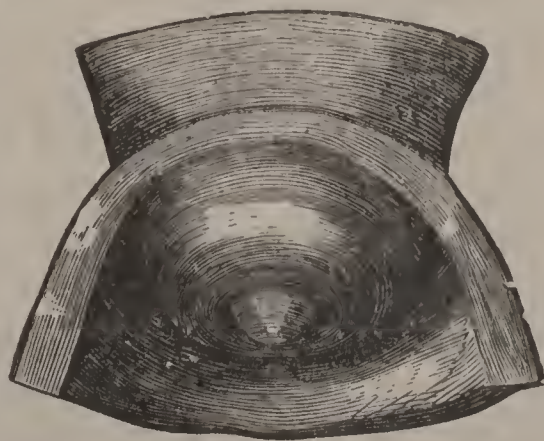


FIG. 140.

Treatment. — As profuse menstruation and uterine hemorrhage spring from a variety of causes, so the remedies are various. Here again we are confronted with the same absolute necessity to investigate accurately the true nature of the complaint before we venture a single prescription. All the cases present one general feature. There is too great a loss of blood; and the first thought is that astringent medicines are necessary to arrest it. But if the bleeding be occasioned by a polypus, or by inflammatory ulceration, astringents would not arrest it, and might do great mischief.

When the immoderate flowing is caused by a general breakdown of the nutritive powers, and by ovarian abortions, the great aim must be to rally the vital powers by iron, quinine, porter, wine, a generous diet, exercise on horseback and on foot, and warm and cold bathing. When produced by local diseases of the ovaries and neck of the womb, the treatment is to be local, — such as has been described. If a polypus or other tumor be the cause, the remedy must be sought for under the appropriate head. If the womb has become relaxed, and bleeds from pure debility, — as it may, — something must be found, if possible, which will condense its substance, making it harder, smaller, and more solid. For this purpose, cold bathing, astringent injections into the front passage, and acid drinks are useful. But one of the best remedies is the wine of spurred rye (267). One teaspoonful should be taken three times a day. This article, by causing the womb to contract, solidifies and condenses it, thus arresting the blood which oozes from its relaxed tissues. Of course, the object of all treatment is twofold: the one to stop the hemorrhage for the time being, the other to remove the cause. The physician may have to be called, and resort had to tampons in the vagina; the uterus itself might have to be packed with gauze; hot douches of 115° to 120° F. will frequently quiet a stubborn hemorrhage, especially if rest in bed with the hips elevated be strictly enjoined. The hot douche should be repeated every three hours. Besides the giving of ergot, hydrastis, hamamelis and atropia are also quite useful, as, for instance: Fluid extract ergot, fluid extract hydrastis, fluid extract hamamelis, of each twenty drops, in water every three hours, with the addition of $\frac{1}{200}$ grain of atropia at the same time.

Sedatives, like the bromide of soda, in ten-grain doses every hour or two, will be of service if the hemorrhage be caused by fright, grief, or injury. The treatment of the intervals must depend on the cause, but generally some systemic tonics like iron or quinine are of great service; rest in bed is, par excellence, *the* treatment in most cases at some stage of the flowing, generally during the flow itself; but rest from excitement and freedom from overwork are equally important when the hemorrhage is due to this cause. Out-door exercise, fresh air and good food are none the less important for weary brains and tired nerves.

Hemorrhage between the periods, or menorrhagia.—When hemorrhage from the womb occurs between the periods, it is called *menorrhagia*, and is more apt to occur in women past thirty years of age, or, at all events, in married women. It is of more significance usually than profuse menstruation, and almost always proceeds from the womb itself. This bleeding comes on often after the *menopause*, or “change of life.” The causes are quite similar to those just considered, but local causes are oftener found. Some sloughing surface, as from cancer, fibroid, erosion of the lining membrane, exists in half the cases. Abortion, and the retention of small pieces of afterbirth, are frequent causes of this kind of flowing.

This trouble demands the immediate attention of the family physician or the specialist, who will examine the uterus and ascertain the cause; and, as not infrequently, the cause consists in something to be removed, a brief mention of the methods employed will not be out of place.

The size, shape, position and firmness of the uterus and ovaries are made out by the examining fingers of the left hand being pressed into the abdominal walls above the bladder, while the fingers of the right hand, with the knees drawn well up, are introduced into the vagina and pressed against the neck of the womb. An endeavor is then made to bring the womb between the two sets of fingers, which maps out its locality, position, etc. The ovaries and ligaments are likewise located. Any erosion of the mouth of the womb, foreign growth there, malposition, excessive size, etc., can thus be readily detected. To explore the inside, one of the various specula before described are used, and the uterus dilated either with tents, so-called, or more commonly with a steel dilator. If, then, there is found aught to be removed, a sharp, spoon-like instrument, called a *curette*, is used to scrape away all diseased tissue or foreign growth, and the womb then washed out with some antiseptic solution. The womb is then often packed with gauze to still further disinfect its interior and afford a means of draining away all oozing blood or forming mucus.

This operation called *curetting* is now frequently done as a regular means of treatment to do away with the causes of hemorrhage and to restore the normal bulk and character of the womb, instead of resorting to the slow, tedious, and less successful methods of former times. It is, to be sure, a regular operation; but when done under so-called aseptic methods, to be described later, is a perfectly safe and trustworthy treatment, far in advance of old-fashioned methods, which seem less heroic.

It necessitates rest in bed, nursing, and the disadvantages of sickness; but on the other hand, it saves lives, stops disease, and renders useful what otherwise might become useless and dangerous to life and health.

Painful Menstruation. — Dysmenorrhœa.

DYSMENORRHŒA is from three Greek words *δυσ*, *μήν* and *ῥέω* which

mean, literally, *a difficult monthly flow*. These words do not precisely describe the complaint; for it consists not so much in a *difficult*, as in a *painful* flow.

Symptoms. — This affection is always marked by more or less pain while the courses are on, — especially during the first day or two. The pain sometimes begins two or three days in advance of the evacuation. It extends over the whole lower part of the belly, running down, at times, to the thighs, and causing great distress in the back. It is frequently so violent as to resemble the pains of labor, compelling the sufferer to take the bed, and drawing from her tears and groans, and occasionally throwing her into spasms most painful to witness. So terrible are the monthly sufferings which some women experience from this cause, that the anticipation of it destroys much of their peace, even during the intervals of respite.

The Causes of this complaint are very numerous. There is, doubtless, such a thing as pain in the womb from rheumatism, and especially from neuralgia, though these are much rarer forms of the complaint than many suppose.

Pains at the monthly periods are often induced by a displacement of the womb. If the organ fall over backward or forward, its nerves are pressed upon in an unnatural way, and when the parts are crowded with blood, it is very natural for painful sensations to be excited. In these cases, the neck of the organ is bent at right angles, and the canal which passes through it is, of course, *strictured*, so that the evacuations are necessarily made with difficulty.

And this leads me to remark, that the passage through the uterine neck becomes, occasionally, from inflammation or other cause, almost closed. The result is, much difficulty and great pain in passing the monthly secretion.

There are no causes which excite painful menstruation more often than inflammation in the uterine neck and the ovaries. An increased flow of blood to an inflamed part always causes pain. An inflamed foot or leg has to be laid up in a chair, because it aches when put down. The reason is, that when hanging down it is more full of blood, and the sensitive nerves are painfully compressed. When the finger is hot with inflammation, *we assuage the pain by holding it up for the blood to run down*. For the same reason, the inflamed ovaries and uterine neck ache when the blood flows to them in large quantities, at the menstrual period.

Congestion of the lining membrane of the womb itself is a frequent cause of painful menses. *It is a condition of the membrane of the womb similar to that of the larynx in membranous croup*. There is the same pouring out of what physicians call coagulable lymph, which forms itself into a membrane. This membrane the womb strives by strenuous contractions to throw off, and finally succeeds in expelling it, not whole and entire, *but in shreds and patches*. These shreds, which women sometimes call *skinny substances*, are characteristic of

the disease. The efforts to expel them cause pains very much like those of natural labor, and sometimes almost as severe.

Treatment. — Painful menstruation, excited by the falling over of the womb, backward or forward, is cured, of course, by putting the organ back into its proper position.

Pains caused by stricture of the canal through the uterine neck, are cured only by enlarging the passage. This is effected by introducing at first a very small bougie, and then a larger and a larger, until the passage is of the usual size. It is a delicate operation, quite successful in careful and skillful hands, but liable to produce mischief when improperly conducted.

In all the forms of this disease, the treatment should aim, not merely at palliation, but at a cure. And generally, I am happy to say, a cure is attainable. Yet how many women suffer for years until health has fled, and life has become a burden, receiving from their medical attendant the assurance that palliation only is possible!

It is necessary at each monthly turn to do something, in these cases, to quiet the pain. For this purpose, twenty drops of spirits ether in a wineglass of tepid water, thrown into the bowel, will be highly serviceable. For a like purpose, one pill (116) may be taken twice a day, beginning one day before the menstrual flow. A belladonna ointment (170) may be rubbed upon the neck of the womb with great advantage, and a teaspoonful of viburnum compound taken each hour.

In the congestive form of this disease, — *that in which the membrane is formed on the internal surface of the womb, and thrown off in fragments*, — the liquid acetate of ammonia, or spirits of Mindererus, is a very valuable remedy taken in two-teaspoonful doses, in a table-spoonful of cold water, three or four times a day, while the pain lasts.

Medicines almost innumerable have been put on the market for this complaint, of which Hayden's viburnum, liquor sedans, diovi-burnum, and a host of others, are examples. These are usually harmless, and may be used. Gin, in goodly doses, is often serviceable by stimulating the circulation. Turpentine cloths, the hot-water bottle, rest in bed, etc., also help amazingly. But whatever remedy may be used at the time, even though the pain be severe enough to require an anodyne, the cause must be sought and treated.

Chlorosis. — *Green Sickness.*

BEFORE the age of puberty, the girl is only a child. She has within her only the *elements* of a woman. The *change* to which she is destined brings with it a wonderful development both of body and mind.

To effect this development, and bring out the new being in the perfection designed by the Creator, a large amount of hidden nerve-power is required. She requires to have been born with a well-vital-

ized constitution, and to have been physically trained in a way to harden and energize it. Without these antecedents, her development at puberty will be feebly and imperfectly made. Her development and *evolution of germs* will be so defective as to cause her menstruation to be only partially established, or to fail altogether.

Symptoms. — Where the inherent powers of the system are just sufficient to bring about a first menstruation, it often happens that they seem to be spent by the effort, and that the evacuation fails to appear again for several months. Indeed, the whole organization may break down at this point, and become blasted, as it were, like a blade of wheat which has grown well for a time, but which fails to develop the kernel.

The blood at this period may become impoverished, and fail to distribute adequate nourishment and development to the various tissues. When this occurs, it loses a part of its red globules, and increases its watery portion. As a result, the skin becomes pale, and sometimes of a yellowish hue; the bowels become torpid and confined; the nervous system sensitive and weak; the digestion is impaired; the appetite is either lost, or perverted, — longing for unnatural food; the tongue is white; the heart palpitates; the spirits are depressed; the temples and ears throb; the head occasionally aches and whirls with dizziness; the sleep is disturbed and abbreviated, and hysterics are now and then superadded to close the catalogue of ills.

This is *Chlorosis*, briefly depicted in its origin and its symptoms. The word is from the Greek *χλωρός*, which means *green* and *pale*. By nurses it is called the “green sickness.”

Its Causes are quite numerous, among which may be reckoned impoverished diet, damp atmosphere, sedentary habits, long confinement indoors, overworking the mind in childhood, constipation of the bowels, and an inherited feeble constitution. This disease is very frequently met with in domestics emigrating to this country from Ireland, Sweden, and the Provinces, and depends on the failure of Nature to accustom herself to the new climate. These cases, however, all respond well to treatment, but when left alone, lapse into consumption, Bright’s and similar diseases.

Treatment. — Chlorosis, as a general thing, is connected either with retention or suppression of the menses; and in treating it, physicians are too much in the habit of resorting indiscriminately to forcing-medicines, called emmenagogues. From such practice great injury often results.

It is not always sufficiently considered that a woman fails to menstruate, or ceases to do so, *because she is sick*; and if we would cause her courses to return, *we must restore her health*. To do this, should generally be the great object of treatment. Let the health be restored, and the menses will come back. The only philosophical treatment is that which will invigorate the system.

In chlorosis, the vital powers are in a state of dilapidation. How can they be roused? By exercise on horseback and on foot; by wearing clothing enough to keep warm; by a tepid bath two or three times a week, and brisk rubbing with a coarse towel; and by a generous diet, composed of tender meats, animal broths, etc.

This treatment, however, should be preceded by unloading the bowels with prescription (35) or (40), according to choice. One pill should be taken at night. When the liver is considerably deranged, prescription (40) will be particularly serviceable. Half a pint of tepid water thrown into the bowel, night and morning, will help relieve costiveness.

The bowels having been well opened, give a tablespoonful of prescription (59), two or three times a day; or of prescription (60), a teaspoonful, the same number of times each day.

In the treatment of this disease, iron, in some form, is almost always needed. Prescriptions (61), (71), (73), (74), (75), (80) and (316), are suitable preparations. Among the more recent remedies for building up the blood in chlorosis, perhaps none is more successful than the combined pill of iron and manganese, called Bland's modified pill, or, if preferred in liquid form, the same remedy may be obtained in still milder and more physiological form in the preparation known as Gude's Peptomangan. The peptonate of iron is also one of the best modern remedies.

A girl suffering from this disease should always be taken out of school. The mind should be divided between rest and recreation.

Cessation of the Menses. — *Turn of Life.*

THERE is probably no period in woman's earthly existence which she approaches with so much anxiety as that which she is in the habit of calling "the turn of life." The anxiety is not without some reasonable ground for its existence. She has been accustomed, for thirty years or more, to lose, every four weeks, a certain amount of blood. When this evacuation stops, disturbances of the system may well be expected. So well is this understood, that this climacteric has come by general consent, to be called the "*critical period*" in female life.

If it be well and safely passed, the health is generally better than before, and a "green old age" is likely to follow. But if the seeds of disease are in the system, — if there be a tendency to cancer or other malignant disease, which has been held in check by the monthly flow, it now takes up its destructive work, and shows itself; or, if there be a predisposition to apoplexy or congestion of any organ, it is more likely to become active, now that the accustomed waste-gate is closed. A distinguished writer has said that about half the deaths among women, about the age of forty-four, are from cancer.

Nervous Complications. — It is the duty of the physician to look carefully after those females who come under his care at this critical time. For, in addition to the organic and malignant diseases which attack her at this time, she is exposed to a host of nervous irritations, which, if neglected or badly managed, make her life a cross and a burden. The symptoms of these irritations are in number, legion.

Age at which the turn of life comes. — As a general rule, the turn of life comes between the ages of forty and fifty; but occasionally occurs at other periods, varying from thirty to seventy. If the menses appear early in life, they terminate early.

Symptoms. — When there is a tendency to corpulency at this period, the symptoms are headache, dizziness, and a sense of suffocation. It is common, when the period of cessation approaches, for deviations from regularity to occur. At one time the menstrual discharge will be profuse; at another, scanty. It will now disappear for a time, and be replaced by the whites. Then it will appear for a few times with considerable regularity. Next will come a suspension for several months, to be followed by a flow of such profusion as to amount almost to flooding.

Mixed up with these irregularities will be palpitations of the heart, constipation of the bowels, a variable appetite, and broken sleep, weakness and inquietude, timidity, a dread of impending evil, irritability of temper, hysterical attacks, bad feelings in the head, with sounds in the ears, as of the rolling of carriages, sparks before the eyes, and an unsteady gait.

Treatment. — If there be, at this period, fulness of habit, with dizziness, headache, sparks before the eyes, a sense of suffocation, etc., there is a plain indication that the brain is oppressed with too much blood. I am not much in favor of bleeding, but this is a case in which from a gill to a half-pint of blood may, if ever, be drawn from the arm with positive advantage. Cups applied to the back of the neck will also be useful. Give at night, also, three of the compound cathartic pills, and then keep the bowels regular with prescription (18), — a wineglassful to be taken occasionally. The diet should be spare, and strictly vegetable: to which should be added much daily exercise.

For the flushes and sweats to which women are subject at this time of life, ergot often answers admirably, in teaspoonful doses every few hours. Atropia in $\frac{1}{100}$ -grain doses not infrequently helps the sweating.

Purging should not, in any case, be carried too far. If nervous affections show themselves, with disturbance of the digestion, and general debility, even leeches would be improper, and physic should be swallowed very sparingly.

When serious organic disease is suspected, as cancer, it is the duty of the physician to investigate the case very thoroughly, and to give

the patient the advantage of the most prompt and decided treatment. That treatment is spoken of in the proper place.

Hysterics. — *Hysteria*.

THE name of this complaint is from a Greek word signifying the womb. It took this name from the belief that this organ is the seat of the irritation which produces the hysteric disturbance.

This belief is correct, if we include with the womb the ovaries and the other sexual organs. The sexual system is doubtless the centre of the reflex nervous derangement called hysteria.

It has been sufficiently demonstrated that hysterics are dependent for their existence either upon organic disease, or upon simple irritation of the sexual organs. Sir Benjamin Brodie mentions cases of the hysteric paroxysm, produced by pressing upon an inflamed and tender ovary.

Symptoms. — An attack of hysterics is generally preceded by depression of spirits, restlessness, and a frequent desire to pass water. It is sometimes marked by convulsions, or fits; at other times, it is not. At times, the attacks are local, and are manifested by spasms of the throat at the top of the windpipe, or in the bronchial tubes; *the patient feels a ball rise up in her throat* (globus hystericus), her heart beats violently, and she laughs and cries by turns.

When the disease is more general, the muscles of the limbs are thrown into spasms; the patient struggles violently; rising up in a sitting posture, and then throwing herself back; twisting the body from side to side, clenching the hands, and throwing the arms about, so that she is with difficulty held by persons much stronger than herself. Soon after these paroxysms, the patient generally passes a large quantity of very pale urine.

The Causes of this complaint are as numerous as the causes of female diseases, for in truth there is no female complaint which may not produce it. Whatever develops and excites the sexual system, and at the same time weakens the constitution, lays the foundation of this malady. Nervous women are much inclined to it. In large cities there is more of it than in the country, because there is more excitement and luxury, and more of their consequences, — nervous and female diseases.

Treatment. — To treat this complaint successfully, it is necessary to search out its cause, and remove that. Like the whites, it is not so much a disease in itself as a symptom.

The first inquiry to be made should have reference to the real origin of the complaint. Is it dependent upon inflammation of the ovaries or the womb, or to displacement of this latter organ? or does it arise from the low state of the blood, and the weakened condition of the nerves, acted upon by some irritation or heightened sensibility of the sexual organs?

If dependent upon inflammatory disease, that is to be treated according to directions elsewhere; if upon falling of the womb, no remedies will avail until that is put in its proper place. If diluted blood and weakened nerves be the cause, iron and quinine are the remedies. When the complaint arises from deficient menstruation, iron and aloes (47) will be serviceable. The nervous spasm can sometimes be broken up by pouring cold water upon the head, or face, or limbs of the patient.

The Hygienic and Moral Treatment are of great consequence. The complaint is very much under the control of the will. Whatever tones the moral nature and strengthens the will, tends to subject this disorder to the control of the patient. Plain, wholesome diet, exercise, bathing, and the enforcing, as far as possible, of a rugged, self-reliant habit, generally go far towards breaking its force.

Polypus of the Womb.

THIS is simply a foreign body, or tumor, growing either within the womb, or in the vagina, and attached to the uterine neck. It is rather a serious affection.

These tumors vary in weight from half an ounce and less to many pounds. They are, in color, whitish, red, brown, and even black. They have almost every consistence, — being soft, spongy, gristly, and hard.

The Symptoms of polypus are various, resembling those of almost every other womb-complaint. It is often mistaken for displacement of the womb, for dropsy of this organ, and for pregnancy.

These tumors are apt to give rise to dangerous bleeding from the womb, and other discharges which greatly weaken and derange the system. They are liable to terminate in cancer. In pregnancy, they may produce miscarriage. When they are suspected, therefore, the utmost scrutiny should be employed to search them out. This is especially desirable, since the fallen or inverted womb may carelessly be taken for a polypus, and be operated on as such.

Treatment. — This is of two kinds, medical and surgical. The first consists in means of supporting the strength of the patient, and checking the discharges by means of injections, rest, etc., and in endeavoring to cause the removal of the tumor by absorption.

This last object is sometimes effected by an unstimulating diet; and by the use of iodine (101) for some time. This treatment does not often succeed, however, and cannot be relied upon.

If the polypus be within the womb, of course it cannot be reached. The only thing to be done, in such case, is to cause its expulsion. This is sometimes effected by causing the womb to contract by the use of spurred rye (267), or by the use of the electro-magnetic machine. This latter remedy can do no harm, and had better be tried first.

Fig.1.



Fig. 2.



Fig. 3.

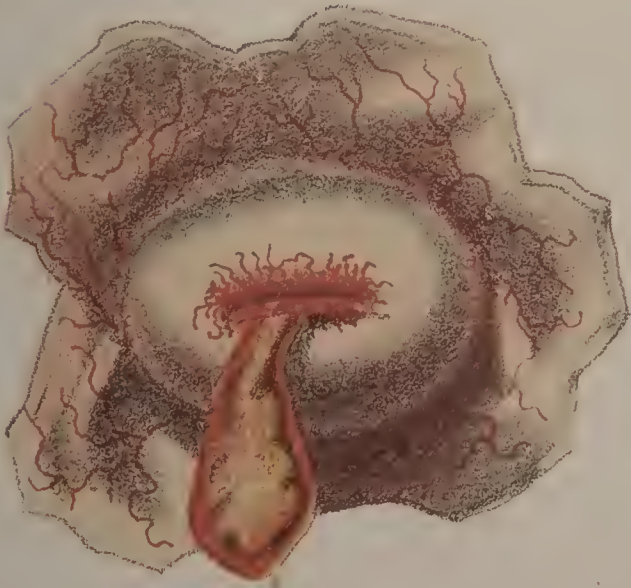
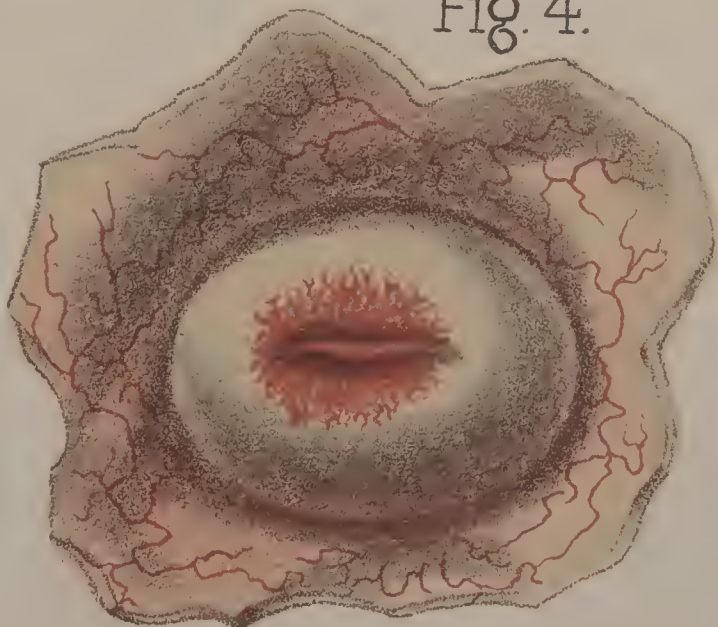


Fig. 4.



When the polypus is outside the womb, the methods of removing it are various. It is sometimes done by cauterization, or burning it off by hot iron or caustic. This is a harsh method, and not resorted to by skillful surgeons. Another method is that of crushing the tumor with an instrument. Another still is that of torsion, or twisting it off. And still another, that of applying a ligature, or tying a string around the neck of the tumor, and strangling it by preventing the blood from going to it. By this means it falls off in a few days. There is one other method, that of cutting the tumor away with a knife, or with a pair of curved scissors. These three last methods are the chief ones now used by skillful surgeons.

Uterine Hydatids.

THIS name is given to a bladder-like substance, occasionally found growing in the womb. It is filled with a white or yellowish fluid. Sometimes a bundle of them grow together, like a bunch of grapes. Some are elongated, like a bean, and have a sort of claw, by which they are attached; others are shaped like an egg.

Those with a claw are generally supposed to be living beings, like worms in the bowels. When expelled from the womb, they move about if placed in warm water.

The Causes which produce these singular growths are obscure. Probably whatever improperly excites or irritates the uterine organs may produce these vesicular bodies.

The Symptoms may be easily mistaken for those either of pregnancy, or of water or inflammation in the womb.

From the growth of these bodies, the bowels may enlarge, the breasts swell, and the menses stop. If to these symptoms be added sickness at the stomach, the woman, if married, feels confident she is in the family way. There is no certain method of correcting this mistake, until the collection of bladder-like bodies is expelled from the womb.

It is rare that these bodies appear in the virgin woman. They are supposed to be connected, in some way, with imperfect conception.

Treatment. — We can seldom say absolutely that hydatids exist, until we see them expelled. Whatever will produce contractions of the womb, will cause their expulsion; but it will not do to give these remedies indiscreetly, lest the cause be one of real pregnancy instead of hydatids. When once reasonably assured that hydatids do exist, the only logical treatment consists in their removal. This is best effected by the dilatation of the womb and a thorough curetting or scraping as described under hemorrhages. Ergot often causes sufficient contraction of the womb to drive out these masses, and may be judiciously tried before resorting to the curette. It should be given in teaspoonful doses every four hours till pains ensue.

Inflammation of the Womb. — *Metritis*.

THIS disease very often follows delivery, and is connected with child-bed fever.

Various Causes also produce it in the unimpregnated state. Inflammation of the ovaries, or of the uterine neck, may extend to the womb. Falling of the womb may cause it to be irritated by being placed in a new position, and thus bring on inflammation. In some temperaments, marriage may produce this disease; in others, singleness. It may also be brought on by painful menstruation, by forcing medicines, by constipation, by tight corsets, by solitary vices, and by excited sexual feeling.

This is the most common variety of inflammation found in the pelvis. It is often limited to the neck of the womb, and is then called *endocervicitis*; it may be limited to the lining membrane of the womb, and is then called *endometritis*, but practically it is all one and the same disease, and sooner or later involves not only the mucous membrane of the interior, but also the muscular structure of the womb itself. It is now considered a germ-disease and rarely results in spontaneous cure. It proceeds from the entrance of germs into the uterus either at the time of labor or miscarriage, or from the entrance of the germ of gonorrhœa; germs, however, from the vagina, which are normal to that region, may often be carried into the cervix and there set up a trouble.

Symptoms:—Pain in the back, nape of the neck, the right or left iliac region; leucorrhœa; painful menses; hemorrhage from the womb; symptoms from neighboring organs (bladder, rectum); and symptoms from distant organs, as stomach, heart, nerves, etc.

No disease gives rise to so many and so complex symptoms. Nausea and vomiting, flatulence, constipation, palpitation, headaches, cough, nervousness, loss of appetite, etc., are frequent symptoms of the various forms of metritis. On examination a hard, congested womb is felt, with perhaps enlargement either of the neck or the entire organ, erosions, ulcerations, eversion of the lips from a tear may be found, while issuing from the mouth of the womb is seen a plug of mucus which is either white, translucent and ropy, or yellow and more pus-like. The womb is tender to touch, and this tenderness may be transmitted to the appendages (tubes and ovaries).

Treatment. — This varies with the variety and the length of time the disease has existed. If there is inside the uterus any retained product of conception, placental tissue, or granulating surfaces, they must be curetted out as described in a previous article. This process is practically an operation and must be done thoroughly and under ether. If there is active inflammation going on in the tubes or ovaries, this procedure must be postponed and milder measures used for

the time being, such as painting the vagina and neck of the womb with iodine and similar remedies.

Tampons of wool wet with glycerine are frequently used to deplete the engorged womb, applications of creosote and iodine will often heal over simple erosions, while hard cicatricial masses are often absorbed by applications of iron. Tampons are to be worn from twelve to forty-eight hours, but should be removed whenever pain is produced. Leeches applied to the neck of the womb often relieve a congested state. The womb is to be thoroughly scraped and washed out, and a good drainage kept for the escape of forming secretions whenever there is severe inflammation of the body of the organ. Lacerations of the neck, when extensive, are to be sewn up, but when only moderate may be successfully treated with strong styptic iron. Hot douches not only serve a good purpose in reducing congestion and inflammation, but are often very soothing. They are to be taken in the *recumbent* position; the water to be hot as can be borne — 110° to 112° F. — and as much as six quarts are to be used. One should purchase for this purpose a large fountain syringe, or a tin pail, and hang it two feet above the head; it is to be used twice daily, and may be used every three or four hours. Patients suffering with this and similar diseases must not dance or take long walks, nor should they use the sewing-machine; neither should they stand long at a time, but should have light exercise in the open air and general systemic medicine; they should lie down every day from two to four hours, and in severe cases must retain the recumbent position. The bowels must be kept relaxed with cascara-sagrada or some morning saline; a teaspoonful of the aromatic cascara at night, or a half-glass of Hunyadi Janos water on rising, are excellent for this purpose. If the woman is pale, a prescription of some iron tonic will be useful, such as the *four chlorides* or *Aiken's tonic pill*.

Falling of the Womb. — *Prolapsus Uteri*.

THE womb is often found out of its natural and proper place. There are certain ligaments and muscles intended to act as stays, and hold it up in its position. These, from various causes, become *relaxed*. It then, losing its support, drops down into the vagina, between the bladder in front and the large bowel called the rectum, behind. It is then said to be *fallen* or *prolapsed*.

The womb of a married woman is more apt to become prolapsed than that of the unmarried, because it is more liable to have its weight increased by congestions, enlargement, torn perineum, etc.

The Symptoms are dull pain in the small of the back, a dragging sensation in the groin, and a feeling of fullness around the fundament; dragging pain in the nape of the neck; headache, constipation, etc.

Treatment. — The complaint is easily cured if the remedies be

applied early. If the prolapse be due to relaxed, weakened supports, tonic constitutional remedies must be employed. The diet must be full and easy of assimilation, exercise taken in the open air, proper rest secured, and electricity be used.

If the womb be tipped over, some support must for a while be used in the shape of pessaries. If by reason of its increased size and weight the womb hang too low down in the pelvic cavity, then it must be made smaller and lighter by treating the coexisting inflammation and subinvolution. If the floor of the vagina has been torn during labor, thus allowing the womb to sag, this must be sewn up and a new floor formed.

In complete prolapse of the aged, the uterus often protrudes from the vagina. This condition in the middle-aged is best met by amputation; while in the very aged a support may be adjusted after having replaced the organ.

Falling Over of the Womb.

Anteversion.—The womb sometimes falls over *forward* upon the bladder, towards the pubes. This is called *anteversion*. The top is turned forward to the bladder; the mouth, back towards the large bowel. (Fig. 141, *b*.)

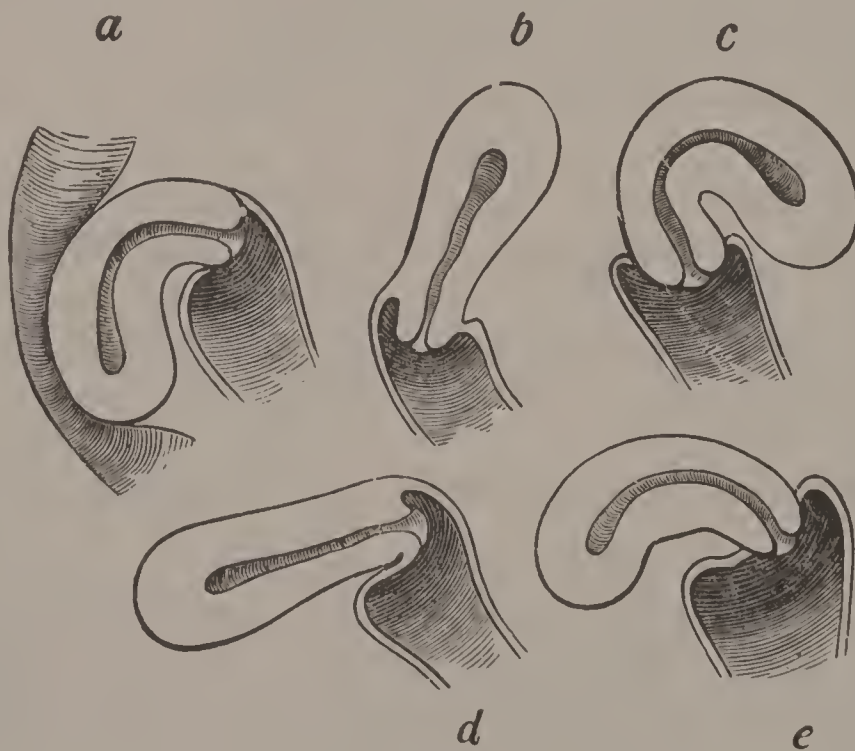


FIG. 141.

Retroversion.—When the womb falls over *backward*, between the rectum and the vagina, it is said to be *retroverted* (*d*). This is just the opposite of being anteverted. In this displacement, the mouth is turned forward, the top backward.

This displacement may occur suddenly or gradually. If the former, there is generally great distress, and the organ should be immediately put back in its place; if the latter, the pain will be less intense, and the replacement must be effected by pessaries,—particularly with the ring pessary, made of India rubber.

Anteflexion and Retroflexion. — When these occur, the womb is *doubled upon itself*, the mouth of the organ not being tilted up before or behind, but retaining its natural position. These flexions are represented by *a*, *c*, and *e*.

Besides these more common displacements of the womb, there are several slighter deviations which it is scarcely necessary to describe. There is the obliquity of the womb, which is simply a *leaning* of the organ backward or forward, or to one side.

There are still other more serious troubles, which are so very rare as not to require me to dwell upon them, such as the inversion of the womb, or turning it wrong side out, like the finger of a glove; and the hernia of the womb (hysterocele), which is like that of the bowel.

Pessaries. — Much might be said about pessaries: they are at times of the greatest assistance in keeping a badly-placed uterus in its proper position; on the other hand, they are serious hindrances to health. By their pressure they often cause inflammation of the ovaries and tubes and light up afresh old, quiescent chronic inflammations. They often stretch unduly the uterine ligaments and make a relaxed vagina. But it must be said that often, too, they keep in place a simply misplaced womb with no trouble and little expense to the wearer, thus avoiding long treatment and perhaps an operation. They should always fit accurately and nicely and should never cause pain or make the wearer conscious that she wears such a thing. The soft rubber variety, or at least those made of wire and covered with rubber, are the least likely to cause trouble; but they need, on the other hand, more frequent inspection and cleansing. The hard rubber are more easily kept clean, but are more dangerous. Whenever a pessary is worn, it should be under the surveillance of the family doctor, lest ulceration of the vagina and undue pressure on the internal parts ensue. Pessaries no doubt are very useful in keeping in place a womb that has been replaced and in warding off an operation otherwise indicated. They are of all shapes and designs, so that a description of them seems superfluous here.

Displacements. — The various displacements of the womb are such common occurrences among womankind that they have always received considerable attention by the gynæcologist. They result from falls in young girls, from enlargement of the organ, from weak uterine supports and poor health, from torn muscles of the vagina during labor, and from new growths in the womb.

The symptoms of a misplaced womb are from nothing to an amazing amount of trouble. Many a woman goes through life with a badly torn vaginal floor and retroflexed womb without the slightest ill-effect, while her neighbor suffers intensely from a much less degree of displacement.

Operative Treatment. — When for any reason a pessary cannot or ought not to be worn, and there is much inconvenience from the misplacement, resort must be had to packing the vagina and reducing the size of the womb, and allaying inflammation and pain before again trying a pessary, or else some of the several operations must be performed. Of these latter there are at the present day three principal methods in vogue, viz.: —

Alexander's operation consists in cutting down on the little holes in the lower abdomen, near the pubic bones, called the hernial rings, through which in the male the cord and vessels of the testes run, where *hernia* or *rupture* occurs, and through which in the female the round ligament of the womb runs. This ligament is a small round cord attached to the anterior and top part of the uterus, acting as a stay. This ligament is dissected out and pulled up taut on either side (there are two, one on each side of the womb) till the womb is brought up into its normal position and there fastened. This operation is a very ingenious one, and answers well in simple uncomplicated cases.

Ventral Fixation is a second method of fastening the womb in place, and consists in opening the abdomen, lifting up the womb and fastening it to the under side of the abdominal wall. This method is tolerably free from danger, like the preceding, but has the advantage of parting adhesions which may bind down the uterus and prevent its rising, and of permitting the operator to see and correct any existing disease of the tubes and ovaries which so commonly accompany bad cases.

Vaginal Fixation is a third method, whereby the uterus is likewise fixed, but this time to the vagina in front of the bladder. This last method is at present receiving considerable attention; but it may be said that no one method is the best for all cases, the surgeon being the best judge of the situation. These operations are safe and efficient, and forever do away with pessaries and the existing disease. Women go on to term in labor quite generally after these operations.

Tumors of the Womb.

THE womb is especially prone to be the location of foreign growths. These occur mostly in middle life, and are commonly either of a fibroid or cancerous nature.

The *fibroid* is a firm, hard mass of fibrous tissue, growing either on the inside wall and suspended like a polypus, or developing in the uterine muscle itself, or on the outside of the womb in the abdominal cavity. They attain oftentimes huge proportions and weigh many pounds. They are not necessarily fatal to life or detrimental to health, but usually give rise to a train of symptoms which may be annoying and fatal. Hemorrhage and profuse menstruation to such an extent that the patient is rendered pale and almost blanched are

not infrequent. Pressure on the bladder and surrounding organs often causes serious disturbance to urination and defecation; digestion is interfered with, and pain is frequently present. When these tumors, which are of slow growth, are small, painless and free from trouble, they may be let alone; but when large, bleeding freely, and causing symptoms of pressure; they must be dealt with. Many gynæcologists of the present day claim that every fibroid should be removed; but as this means the enucleation of the womb and ovaries (hysterectomy),—a very severe operation,—we cannot endorse this view, especially as hundreds of women go through life unscathed even with large tumors.

The *menopause*, or “change of life,” has a twofold effect on them: some begin to atrophy and grow small after the blood ceases to come to these parts in regular monthly congestion, and they may even disappear entirely: others are increased in size and even change their structure into malignant growths. Hence it will be seen that these tumors require the supervision of the family doctor or specialist, that their growth may be watched. It remains to be added that many advocate the use of strong galvanic currents, applied according to the method of Apostoli, a noted French savant, to diminish the size of these tumors. Many cures are claimed, and at one time it seemed as though this method was destined to supersede all others; but now, after a few years’ trial all over the world, it is generally conceded that only certain varieties are amenable to this treatment, and that the tumor does not entirely disappear. This method, however, obviates the necessity for operating, and is in many cases an admirable way of reducing and keeping in check what otherwise might threaten life. It is still a much used, though often abused, method of treating them, and appeals to the timid and obdurate.

Cancer of the Womb.

THIS is another but more dangerous growth of the womb, and occurs mostly in women near middle life, especially in cases which have a family predisposition to cancer, and when the neck of the womb has been badly lacerated from labor or miscarriage. It usually begins in the neck of the womb like a little bunch, which bleeds easily on touch, and extends rapidly into the neck and finally up into the body of the uterus. Its entire life-duration may not exceed one or two years before death claims the sufferer. Hemorrhage and foul leucorrhœa are often the only signs which attract the patient’s notice. Pain finally sets in, with breaking down of the cancerous tissue, and then a very foul and peculiar odor commences. This odor is very penetrating and is characteristic of the disease. Emaciation, loss of appetite and strength, painful days and nights supervene, and finally death comes to relieve the sufferer of one of the worst diseases to which womankind is liable.

Treatment. — The only treatment consists in the early detection of the disease and the enucleation of the entire uterus by the vagina. If it has been discovered early, before the cancer-cells have got outside of the womb, it may be successfully treated at least for a number of years. I can not better advise women than by warning them to consult a physician at once on the occurrence of any unusual hemorrhage near the change of life. So many ascribe these slight hemorrhages and aches to this broad mantle of ignorance, that precious time has been wasted and the golden opportunity passed for curing the dread disease. Do not waste time and money, either on nostrums or other quackish methods, nor listen to what Mrs. So-and-So did, but proceed at once to the best authority you have at your disposal. So much is being successfully done now for the relief and cure of these growths, women owe it to themselves and their families to take advantage of modern skill and knowledge. The microscope will detect it earlier than the eye or finger, and thus a suspicion may be corroborated or a fear dispelled by timely advice.

Of palliative treatment, the application of styptics and the curette cause a delay of the growth and a cessation of hemorrhage; while anodynes like morphine or opium in some of its forms will allay pain and anguish.

Ovarian Tumors.

OVARIAN tumors are rather frequent growths, occurring for the most part as cysts and attaining a huge size; not infrequently they grow to such an extent that their weight far exceeds that of the entire body. They are filled with a clear light-yellow fluid. Their treatment consists in their removal through the abdomen (ovariotomy), and should be operated upon as soon as detected. The rate of mortality following these growths is not large. It was this operation, began in America in the forties, that was the beginning of a new era for surgery of the abdomen. Only when neglected does one now-a-days meet with these enormous growths.

When for any reason an operation is inadvisable, they may be tapped and comfort received for a long time.

The ovary is likewise the seat of other growths both benign and malignant.

Inflammation of the Fallopian Tubes.

To speak of this disease means to review the growth of gynæcological science within the last fifteen years.

The operation of laparotomy, or opening the abdomen, is now performed so successfully by almost every surgeon, that it has taken its place among the every-day measures for relief, and frequent opportunities have of course been presented to the profession, of corroborating or refuting some old-time theories. Many a notion of inflammation of the bowels, or peritonitis, has become a thing of the past;

many an unexplained death has been made clear, and many, many lives have been saved by a timely recognition of the true state of affairs within the pelvis.

Many cases of what formerly was regarded as peritonitis are now known to have been either salpingitis, ovarian abscess, appendicitis, etc. Of these diseases the most prolific of trouble, as well as the most common, is salpingitis, or inflammation of the tubes which conduct the ovum to the interior of the womb, where it is fructified by the male germ.

These tubes are lined with a mucous membrane like that of the interior of the womb, and continuous with it, so that whenever inflammation from whatever source is present in the cavity of the womb, it is extremely liable to travel up the tubes, even to the ovaries and peritoneum. This inflammation may be merely catarrhal, and only become bothersome by its chronicity, or it may become purulent and suddenly cause violent illness.

The *catarrhal* form begins very slowly and gradually from some old neglected uterine disorder, or it may follow a labor where there was some septicæmia or blood-poisoning; it may spring from venereal disease, either contracted by the woman illicitly or given her by her husband; and it may come in several ways not of general interest to the reader. At all events, it is essentially a germ-disease, and when anyways severe has a tendency to spread and become worse.

Symptoms. — These little tubes, which are normally about the size of a slate-pencil, become swollen, and very painful and tender, causing inability on the woman's part to do a full day's work, and even confining her to bed. The temperature is raised, the belly bloated, the urine often being frequently passed; the bowels are constipated, appetite poor, and digestion bad; sleep is disturbed and the nerves weakened.

On examination, the trained finger in the vagina feels a large, swollen, tender tube on the affected side, and often a bulging of the roof of the vagina.

Treatment. — Rest in bed, hot douches, painting the side with tincture of iodine, and the using in the vagina, every night and morning, of a suppository of five grains of ichthyol, with laxatives and nerve sedatives, will do much toward reducing a slight and even moderate attack. The disease, however, does not usually exist alone, and therefore much time is generally necessary in eradicating it.

When the catarrhal form, however, gets worse, and pus forms, we then have the so-called *purulent salpingitis*, or *pus-tube*. Pus gathers here as elsewhere, stretching the tube more and more; finally the pus-germs work through the tube and out of the end, where they set up an active inflammation, and new tissue forms about the tube, shutting it off from the general cavity. Everything in the neighborhood becomes glued together, fixing the womb in an immovable

position. The tube goes on stretching more and more, till finally it becomes one large abscess-cavity. It may then, at times, be punctured through the vagina and thus drained; but generally an operation is required, either to remove the womb and its appendages through the vagina, or else to open the abdomen and take away the large mass of exudation, in the centre of which is the pus-cavity. When matters have reached this stage, the patient is of course in a very grave condition. There is a high fever, with sweats and perhaps chills, loss of appetite, pallor, pain, and all the evidences of being extremely sick. The patient either dies shortly or becomes bed-ridden, unless an operation can relieve her. This latter variety of the disease is called *pyosalpinx*.

Acute Salpingitis is best treated by rest in bed, douches, saline purgatives, and a liquid diet. It gradually subsides without serious results.

Chronic Salpinitis is the more common variety, is very protracted in its course, and rarely ends in spontaneous recovery. It requires great patience on the part of both physician and patient, and often can only be cured by the removal of the offending organ by laparotomy.

It must be remembered that all these various forms of tubal disease are produced by one form or another of bacteria or disease-germs, and that in their treatment strict cleansing of the vagina by antiseptics is necessary.

Salpingitis is always preceded by some form of metritis or endometritis, as, for instance, the gonorrhœal metritis, that caused by septicæmia or blood-poisoning, the metritis following labor, etc.

Inflammation of the Vagina.

THIS may be produced by many of the same causes which induce inflammation of the uterine neck. It may follow tedious child-bearing, especially if instruments have been used. Marriage is not an infrequent cause of it, — so may a pessary be, if an improper one.

The Symptoms are pain in the groins, a feeling of heat and tightness in the passage, and a difficulty in passing water. In a few days a discharge, like gum-water, begins to flow, which gradually becomes thicker, like cream, and is green or yellow. Sometimes the disease gets well in a few days; at other times it degenerates into the chronic forms, and lasts a long time. It should be cured as soon as possible, lest the inflammation cause the walls of the passage to grow together, and make a stricture, as in Fig. 142.

In this Figure, *b* represents the mouth of the womb; *a* is the lower entrance to a narrow passage in the vagina, called a stricture. It is caused by inflammation, which so thickens the walls of the vagina as to bring their inner surfaces near together. In examining a case of this sort, a practitioner needs to be on his guard lest he

mistake the entrance to the stricture, *a*, for the mouth of the womb, *b*,—a mistake which might lead to evil consequences as well as seriously damage his professional character.

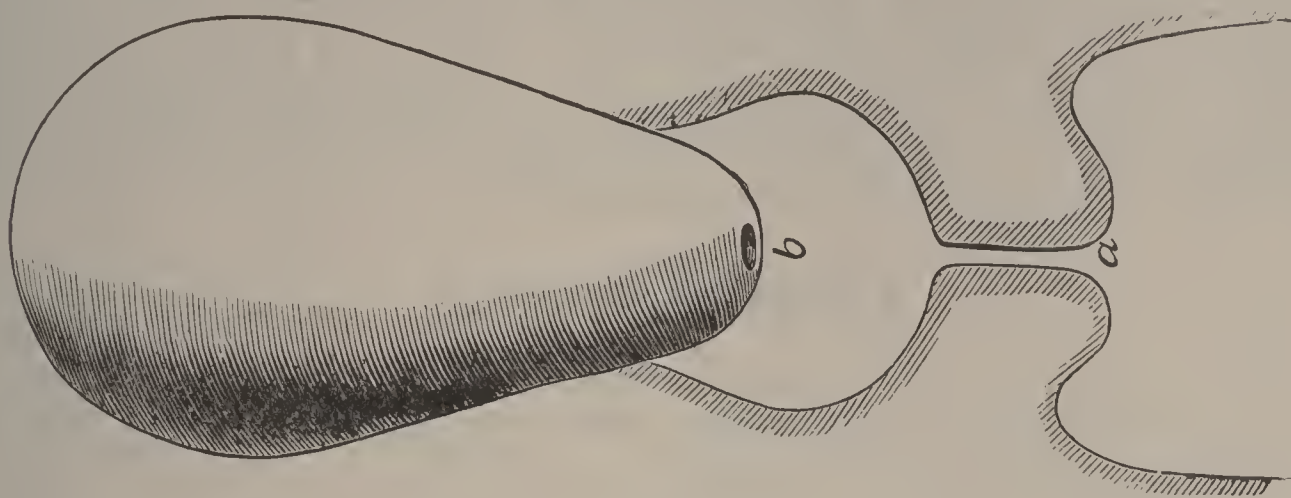


FIG. 142.

Treatment.—The diet should be light and unirritating. The bowels should be kept open. A cooling wash (207), (218), should be used several times a day, until the discharge becomes thick; then employ injections (232), (202), (244), (243), of a more astringent nature. Let the marriage-bed be abandoned till the recovery is complete.

When the discharge arises from small granular elevations upon the inner surface of the vagina, the whole diseased surface should be painted over with a solution of nitrate of silver, twenty grains to the ounce of water, — the disease being brought to view by the use of a speculum. This may be done every other day.

Itching of the External Parts.—*Prurigo of the Vulva.*

THIS complaint is apt to attack females about the cessation of the menses, though they are liable to it at other periods. It is a most annoying and distressing affection. So terrible and tormenting at times is the itching of the external genitals, that the woman is unable to avoid rubbing and scratching, and she is occasionally compelled to absent herself from all society. She feels, as she says, as though she could tear herself to pieces.

Sometimes this irritation of the sexual organs excites venereal thoughts so dominant and controlling as to constitute a real mania, called *nymphomania*, from the name of a part involved.

This complaint generally indicates some disease of the womb, or its appendages, or of the bladder. When this is the case, of course it cannot be cured without seeking out and removing the disease of which it is a symptom.

Treatment.—To alleviate the local suffering, the lotion (223), or the ointment (171), may be applied to the parts several times a day. I prefer the lotion. A weak solution of nitrate of silver (211)

will sometimes do well. A four per-cent solution of cocaine is the best application.

When the disease is brought on by masturbation, as it sometimes is, this habit must, of course, be broken off before a cure can be effected. In this case, also, moderately cold water must be applied to the parts several times a day; some of the preparations of iron should be taken, and some active employment be engaged in, which will absorb the energies of mind and body.

Tubal Pregnancy.

TUBAL or ectopic pregnancy is mentioned here in connection with womb diseases, because it assumes the symptoms of certain uterine affections, and must be so treated.

When, for any reason, the ovum cannot pass through the Fallopian tube into the womb, where it is normally impregnated by the male germ, but is arrested in the tube, it not infrequently happens that the spermatozoon of the male travels upward through the womb into the Fallopian tube, and there meets the impeded ovum. Fecundation takes place, the ovum swells and grows, the tube stretches more and more till it bursts, and then a hemorrhage occurs into the abdominal cavity, from the leaking tube. A large clot of blood is formed, which generally arrests further hemorrhage and causes the death of the embryo, but not necessarily; after a time, another hemorrhage occurs, with pain, fainting, and even collapse, depending on the severity of the hemorrhage. If allowed to follow its natural course, the hemorrhage finally causes the patient's death. She dies suddenly, as if she were bleeding from a ruptured artery. The cause of all this mischief lies in the diseased tube in which the obstruction occurred. The Fallopian tubes are lined with a beautifully constructed mucous membrane: on the ends of the cells are small rod-like processes, which look (under the microscope) like a field of grain swaying with the wind; they move in one direction, from an erect position toward the uterus, and then relax and straighten up again to repeat the process; thus the ovum which has been grasped by the fimbriated ends of the tube from off the outside of the ovary (see Fig. 136) is carried down into the interior of the womb, where nature meant it should be impregnated. Now, when these tubes become diseased by catarrhal, and especially by purulent inflammation (see Salpingitis), the little rod-like extremities of the cells are destroyed, and the ovum finds no ready way of getting into the womb. An unusually active spermatazoon climbs up into the tube, because it has the power of motion so long as it lives; and thus the trouble begins.

Symptoms. — A woman misses her menstruation, and goes on a month; possibly missing a second or even a third menstruation, without many of the usual accompanying symptoms, till suddenly

she is seized with cramp-like pains in the lower bowel, and takes her bed; she may get up from this first shock of pain (due to hemorrhage), till a second, or even a third still severer attack ensues, when the doctor is called. If he is thoughtful, he at once examines and finds a bunch in the pelvis, on the side of the pain. This bunch is the clot, and the contained sac with the foetus. Not every case is taken alike, but many are crippled at the first onset of pain and hemorrhage; inflammation ensues, and sickness in bed attracts the attention. Usually, there is some slight hemorrhage of blood escaping through the tube into the womb and out into the vagina.

Treatment. — This disease, like appendicitis, belongs to modern surgery, as only recently has it been recognized, and treatment on a sound basis been formulated. Death is sure, unless surgical aid comes to the rescue. Laparotomy, or opening of the abdomen, must be performed at once, the clots washed out of the abdomen, of which, usually, there are a quart or more, the sac containing the embryo removed, and the tube tied off. The successes are brilliant, and lives are daily saved. The operation is a grave one, but not as much so as many others performed on the abdomen.

Sterility or Barrenness.

It has doubtless occurred to every person who has thought upon the subject, that there must be some special reasons why so many women do not and cannot bear children. These reasons I propose now to explain as simply and as plainly as the nature of the subject admits. To this explanation I shall add some remarks upon treatment; for, in nine cases out of ten, barrenness is completely curable.

Reproduction. — Throughout nature, life is perpetuated by reproduction. The vegetable and the animal die; but before death comes, they reproduce the *germ* of a new thing, or being, which lives after them. The law of reproduction, throughout the realm of nature, is one, and but one. All living things have male and female structures. Every new being is evolved from an egg, the product of an antecedent parent.

Reproduction consists in the growth of an egg, or germ, in connection with some living part, until it is capable of independent existence. This germ or egg is the product of the female parent, and will abort or perish unless brought into connection with a fructifying element from the male. Thus, two palm-trees, growing about forty miles from each other, the one with stamens (the male organs), the other with pistils (the female organs), bore no seed for many years; but when they had risen in height above all intervening and obstructing objects, the winds bore the pollen from the stamens of one to the pistillate flowers of the other, which immediately began to produce fruit. A knowledge of this great law, as applicable to all living

things, enables horticulturists to raise such varieties of fruit as they wish, by shaking the blooming male branch, which has stamens, over the female flowers, supplied with pistils. Sometimes the male and female flowers are upon the same plant, at other times, upon different ones. The strawberry is of the latter kind, — the pollen being found only on the plants which have the largest flowers, — the pistillate flowers being only on the smaller plants. The pollen, or dust, is carried from the male to the female plant, on the feet of honey-bees, as they fly from flower to flower. It has been discovered that the reason why many beds are unfruitful (strawberry beds, I mean), is that the large male-plants are allowed to monopolize the beds to the exclusion of the smaller female plants. The plants with large flowers should be thinned out, leaving only a few to furnish pollen for the females, which are the real bearers.

A New Branch of Industry. — It is only comparatively recently that this law has been understood in its wide applicability. How wise and merciful an arrangement of Providence that an unseen hand should turn for man the mystic leaves of knowledge at the very time when he is most in need of the instruction imparted! At this very moment, the more complete knowledge of this great law is opening a new branch of industry, and a new supply of food, and is thus helping the solution of the great problem of how the increasing inhabitants of civilized countries are to be worked and fed. I refer to the propagation and culture of fish.

A committee appointed by the legislature of Massachusetts, reported very ably upon this subject. The eggs of the fish may be fecundated almost as easily as the pistillate flowers of the plant. It is only necessary, when the eggs of the female are mature, to hold her over a basin of water, and make gentle pressure upon the belly, when the eggs will pass freely into the water; then to pass the milt of the male into the same water, and shake them thoroughly together. By this means, the eggs are impregnated, and fish may be raised to any extent.

The egg of the higher animals is more difficult to fecundate, and that of the human female most difficult of all; for in nature, as in art, the more perfect structures are begun and reared with less ease.

Propriety of Imparting this Knowledge. — Men are naturally curious, and love to understand the mystery of their own origin; and yet there is scarcely any subject upon which they have so little reliable information. It has been held that this is a kind of information which it is not proper to impart to the multitude; that the curiosity which seeks this knowledge is based upon improper feelings; and that to gratify it by imparting what is sought, would lead to immorality.

I do not believe it. Such ideas are based upon a shallow philosophy. They overlook the fact that nothing excites the imagination

like that which is covered with mystery. It is *because* the immensely important subject of the procreation of the race is so carefully hidden from the public eye; *because* it is purposely buried so deep in obscurity, that any allusion to it excites improper thoughts. If the subject be properly viewed, it is no more indelicate to explain the mode of reproducing a human being than to explain that of propagating a plant or a fish. Both are effected in the same way, under precisely the same natural law.

True, the propagation of the human being involves moral laws likewise; but these relate only to the social relations in which it may take place, and do not affect in any way the propriety of making it understood by the people.

The Germ Furnished only at Certain Periods. — These general remarks bring me to the immediate subject in hand. Throughout animated nature, the female furnishes the mature germ or egg only at certain periods. The healthy human female, — as I have already explained, — matures a germ once in four weeks. These germs or eggs are constantly advancing, in succession, from the rudest beginning to a state of ripeness or maturity. Every person must have seen the eggs taken from a hen when killed in the laying season. Fig. 143 furnishes a good illustration. They are in all stages of progress, from the invisible germ up to the nearly mature egg.

Such is the progress of the human egg, — only that it does not attain to any such size. So far as the maturing is concerned, it occurs in the same gradual way.



FIG. 143.

Conception or Impregnation can take place only when a germ or egg is ripe; and as an egg ripens, bursts, and passes into the Fallopian tubes and thence to the womb only at the time of menstruation, it is plain that conception must happen somewhere in the neighborhood of this period. Intercourse with the male may take place at intermediate times; but, except in some rare instances, conception will not occur, because there is no mature egg to be impregnated.

Now, as every healthy woman brings to maturity a germ or egg at the time of every monthly flow, and as every ripened egg is capable, under favorable circumstances, of being fecundated, it follows that every woman who menstruates, and is well, can, under certain cir-

cumstances, be impregnated. To effect it, it is only necessary that the vivifying portion of the male semen, called spermatozoa, come into union with the ripened egg.

This union (for, that men and women may have a chance to know as much about themselves as they do about fishes and plants, I propose to make the whole subject plain) takes place in the following way. In the act of copulation, the male organ penetrates the vagina, and deposits the sperm, spermatic fluid, semen, or, as the scriptures call it, the "seed," directly at the mouth of the uterine neck. Some suppose that when the sensation of the female is at its height, the womb opens to receive the injected semen. But this is uncertain.

This spermatic fluid is composed, in large part, of mucus. A smaller portion of it is secreted by the testicles, and is the true semen, or life-giving principle. This last portion is composed, almost entirely, of fertilizing filaments or vesicles, which look like small animals (Fig. 144), and for a long time were supposed to be animalcules. They are generally called *spermatozoa*. By some mysterious law of their nature, they are endowed with the power of motion; and when deposited near the mouth of the womb, they immediately begin to move, as if by in-



FIG. 144.

stinct, in search of a ripened egg. Passing through the uterine neck, they enter the womb. If an egg be found, in its ripened condition, they immediately embrace it, and, in some mysterious way, mingling their own contents with the contents of the egg, they impregnate or fertilize it. Fig. 145 shows the womb divided lengthwise. A, is the *internal mouth* (os internum), or point where the canal through the uterine neck enters the body of the womb; B, is the *external mouth* (os externum); the space between A and B, the passage through the neck; and C, C, the points where the Fallopian tubes begin. By looking back now, and examining Fig. 136, the whole thing will be understood.

This is a very brief and simple account of impregnation. It is supposed to be capable of taking place either a little before or a little after the monthly flow, and not at intermediate times, for the reason already stated.

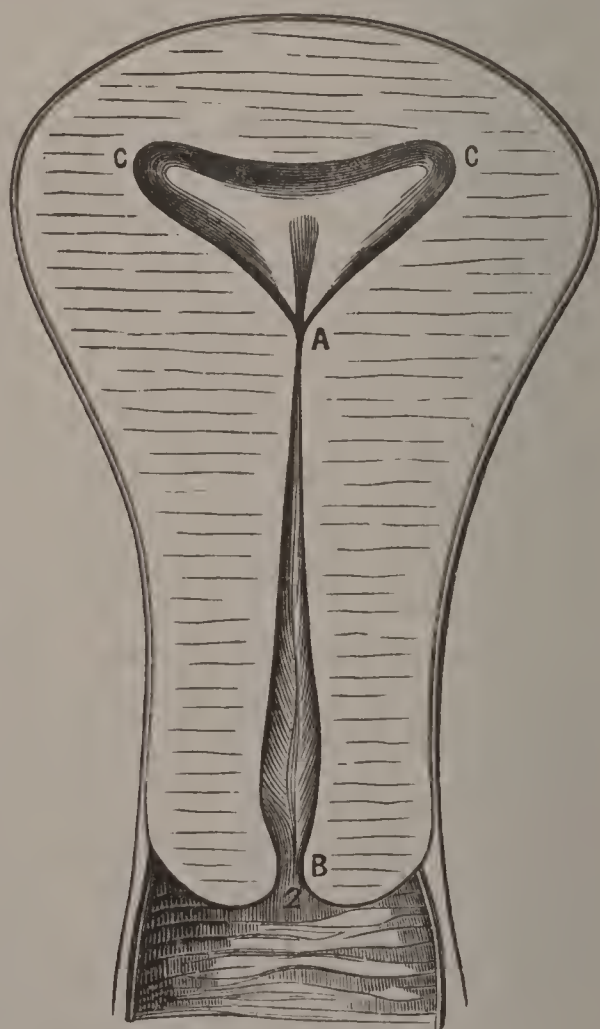


FIG. 145.

There are some reasons for believing that the same egg or germ, if fertilized just before the courses, will grow to be a male, while, if fecundated after the turns, it will be a female. One reason for this supposition is, that plants may be made to bear male or female flowers by simply subjecting them to different degrees of heat. If there be more heat than light, male flowers are produced; if more light than heat, female flowers are the result. The heat of the female generative organs is raised to its highest degree about the time the egg bursts its covering, which is just before the beginning of the flow.

It has been thought that the right ovary produces males, and the left ovary females; but this theory is not supported by any facts, and is probably not true.

Causes of Sterility. — From what has been said, it would appear that to ensure child-bearing it is only necessary that semen or seed, containing spermatozoa, come in contact with a germ-vesicle or egg, at the right time; that there be no hindering disease; and that the parties cohabiting be adapted to each other.

It is evident enough that a want of adaptation between the parties, physical or moral, or both, is often an absolute bar to conception. A lack of moral adaptation was probably the obstacle in the case of Napoleon and Josephine, — her marriage with a previous husband, and his with a subsequent wife having both been fruitful.

It is certain that indifference on the part of the wife towards the husband, and especially repugnance, may prove an obstacle. A mere lack of sexual feeling does not necessarily prove a bar, though it probably lessens the chances of a fruitful union.

Conception may fail to take place from the diminutiveness of the male organ, — the semen not being deposited in the right place; or, from its excessive largeness, — penetration of the vagina being impossible. In some rare cases, the womb is absent. The inflammation of the ovaries often prevents the ripening of eggs. The Fallopian tubes occasionally get diseased and plugged up, so that no egg can pass to the womb. Inflammation in the cavity of the uterine neck is probably the most frequent of all the causes of sterility. The viscid, gluey matter which is secreted in inflammatory conditions of this part, plugs up the passage, so that no spermatozoa can pass up in search of the egg. The acrid discharges in most of the cases of whites destroy the fertilizing spermatozoa, and render conception impossible. All the displacements of the womb may act as bars to impregnation. If it fall over backward or forward, the mouth is tilted up before, or down behind, and is not in the right position to receive the semen. One of the most general causes is trying to avoid pregnancy in early years of married life.

Treatment. — Judicious treatment will, in most cases, remove sterility, and open that “well-spring of pleasure,” which the poet has so felicitously described as — “a baby in the house.”

The obstacles to conception, stated above, are chiefly those diseases which have been previously described. To cure those diseases is to remove the obstacles. When it is dependent on the causes which produce painful menstruation, or profuse menstruation, or a suppression of menstruation, the remedies are the same as are pointed out for those complaints. If inflammation of the ovaries be the cause, a cure may be effected, provided the inflamed condition be removed before the bundle of eggs be destroyed. If inflammation or ulceration of the neck of the womb be the obstacle, the remedy may be found in the treatment recommended for those affections.

Sterility depending on the causes just mentioned, I have had the pleasure of curing many times. When dependent on a lack of physical or moral adaptation between the parties, it does not, of course, admit of relief. It is a misfortune to be borne in silence. It has happened, perhaps, through a lack of judgment or care in selecting a partner, and is one of the mistakes of a lifetime which a lifetime cannot repair. When this want of adaptation is not complete, a remedy may frequently be found.

Unfortunately, many females do not regard sterility as an evil to be deplored, but rather as a blessing to be desired. Life, to them, has no high aims or duties, — it is a round of fashion and pleasure. To bear and rear children interrupts their frivolities, and they seek to escape such abridgement of their pleasures. This is wrong. Life is a great theatre, in which all should strive to act some worthy part, and feel that, upon retiring, it would be wrong to leave their garments upon the vacant stage, with none to put them on, and continue the drama.

Midwifery.

A STOPPAGE of her courses is most commonly the first notice a woman has of her being in the family way. This is perceived about three weeks after conception, when she begins to experience other feelings peculiar to the situation. These feelings are *nausea* and *vomiting*, or a decided languor, in the morning; swelled and sometimes painful breasts; the areolæ, or colored rings around the nipples, *darker* than usual; pain in the lower part of the back; and, occasionally, a good deal of spitting of a frothy, cotton-like substance.

These symptoms are more or less severe in different cases, and under different circumstances, according to the state of the patient's bowels and her habits of exercise. Ordinarily, she suffers most during the second and third months, on account of

Sinking Down of the Womb, which, from soon after the period of conception, is gradually increasing in size and weight. As it grows larger and heavier, it sinks lower in the cavity of the pelvis, until about the fourth month, when, becoming so large that it cannot longer be accommodated within the narrow limits of this unyielding *box of*

bones, it is obliged to mount higher to find room in the ampler and more distensible belly. This low position of the womb in the early months of pregnancy occasions many disagreeable sensations, — as pain in the lower part of the back and sickness at the stomach.

The Costiveness, too, from which women suffer so much at this time, is often caused, in part at least, by the pressure of the enlarged womb upon the lower bowel. Costiveness, thus induced, at length becomes itself a cause of serious mischief. The lower bowel, filled and enlarged with its hardened contents, reacts upon the womb, crowding it still lower in its narrow quarters, and greatly increasing its excitability. The enlarged bowel and womb combined make constant pressure, *sometimes* upon the urethra, or water-pipe, causing pain and difficulty in making water, and *always* upon the ascending veins, checking the return of blood, and producing congestion in the lower bowel, manifested by troublesome *piles*.

Treatment of Pregnancy. — When the pregnant woman first recognizes her situation, she should determine to “observe moderation in all things.” Let her avoid violent and sudden exertion, and move about more calmly and evenly than usual. By this is not meant that she should give up her customary occupation; but that she should pursue it with becoming carefulness, resolved in no case to hazard over-exertion, and rather leaning to the side of indolence. This would not be *real indolence*, for she is doing a *great work internally*, and should not unduly withdraw her energies to external affairs.

Let her not be too much in the erect position. If of delicate constitution, and not in vigorous health, she should make it a point to lie down several times during the day. The standing position, continued for a long time, especially if it be under circumstances to induce fatigue, greatly favors the descent of the womb, — while a frequent rest in a horizontal position may enable it to keep its place.

An Objection. — It may be objected by some, that a large majority of the mothers in the world are working women, and obliged to contribute by their industry to the support of their families; and that they cannot afford, therefore, to lie still, and mind directions.

To this it may be answered, that it is a great advantage to understand the best way, so as to have the privilege of at least aiming at it. Much is accomplished, in all circumstances, by aiming at doing the best thing; and few women are so situated that they could not so favor themselves as to obey the laws of health a little more perfectly, if they thoroughly understood them. All can better afford to avoid sickness, than to be sick. Many occupations, also, unless money tempt to excessive application, become, when steadily followed, comparatively easy and unexciting. Thus, most people can go through their usual round of duties, because they have *got used to it*. Indeed, there is nothing but indolence itself, to which we may

not become accustomed. The difference between the laboring and the privileged classes is more imaginary than real. All must work. None can escape the primeval decree — “In the sweat of thy face shalt thou eat bread.”

Many women, when they find themselves in the family way, will observe no caution, but work all the harder, and even use other means for the purpose of bringing on abortion, and preventing an increase of children. This unnatural and wicked, but too prevalent, disposition, results sometimes from a fear of the pains of child-birth, sometimes from a desire to avoid the necessary care and confinement connected with raising children, but most often from a wish to escape the expenses which the prevailing fashions and customs of society connect with a large family. The cost of a shattered nervous system, and of a body weakened and poisoned by powerful drugs, is not considered, because not understood! Hence the success of those quack advertisements, impudently professing to cure female diseases, but whose chief object is disclosed by the insertion of the hypocritical caution — “Be careful not to take this medicine during pregnancy, as *it will be sure to produce abortion.*”

It seems as if the world would never learn that God loves children, although since Abraham's day he has said so much about them in his Word, although His Son, sent into the world on purpose to show the disposition of the Father, took them up in his arms, and blessed them, and although He has implanted a most wonderful love of them in the soul of man.

Costiveness and Piles. — Let the pregnant woman use all proper means to keep her bowels in order. She will thus greatly diminish the distressing nausea, and may entirely prevent the accession of piles. To accomplish this object, the saline aperients (7), (5), or, occasionally, other mild cathartics (10), (12), (14), may be used. But more important than either or all of these is the frequent use of a good self-injecting family syringe. An injection of half a pint of cold water every morning will do much towards regulating the bowels, and preventing or curing piles.

Nausea. — If, as sometimes happens, there should be persistent nausea after the first three months, it will need to be combated by mild tonics and stimulants, as chamomile tea, or clove tea (58), (114), and by seeking a kind of diet which will be agreeable both to the palate and the stomach. Ten grains of ingluvin after each meal, and on arising, oftentimes prevent vomiting. Stretching the neck of the womb moderately, and replacing a retroverted womb, are foremost in importance of treatment when structural causes demand such interference.

A tablet containing 2 grains of oxalate of cerium, 2 grains of subnitrate of bismuth, and 1-12 of a grain of cocaine is very useful if taken three or four times a day. These tablets may be bought under the title of nausea tablets if made by a reliable chemist.

The Nipples. — During the last month, particular attention should be paid to the nipples. Untold misery often results to the young mother from *sore nipples*; and it is well worth her while to use every precaution against them. The nipples are, of course, in an excitable state during the whole period of gestation, and at length frequently become irritable and tender. Let them be daily bathed, for three or four weeks before confinement, with some astringent and cooling lotion, as oak-bark decoction, borax water, alum-water, or a solution of tannin (200), (201), (202), (203).

Nothing is better than the daily application of weak alcohol and water.

The object of treatment, in this case, is to toughen them and render them less susceptible, so that they may not be made tender by the subsequent application of the child's lips.

When a woman is peculiarly liable to this trouble, the further precaution of having them gently drawn by some friend, every day, during this last month, would be of great service.

At all events, let no pains be spared to guard against this evil; for sore nipples make sore breasts, and sore breasts make broken breasts; and broken breasts are terrible things. They make the mother sick; and if the mother is sick, the child is sure to be sick; and all hands soon get sick and worried, and the whole business of having children, and taking care of them, is deprived of its peculiar joys and consolations, and brought into undeserved disrepute. Whereas, under wise and prudent management, there is something delightful to the young mother in yielding sustenance to her dependent offspring. For, when her nipples and breasts are in a healthy state, she can say with the poet, as

“ The starting beverage meets its thirsty lip,
'Tis joy to yield it, as 't is joy to sip.”

Swathing. — In advanced pregnancy, much assistance in supporting the burden is sometimes derived from swathing the bowels. Healthy and vigorous women, however, need no such assistance; it is chiefly applicable to cases of debility, either constitutional, or resulting from neglect, or from over-exertion during former pregnancies.

Cramp in the Stomach is sometimes very severe, and if allowed to continue, may kill the child. The best remedies are warm carminatives (114), (115), or anodynes, etc. (121), (122), or antispasmodics (90), (94).

Headaches. — These may be relieved by antispasmodics, etc. (90), (94), or anodynes (121).

Palpitation of the Heart may prove very distressing to delicate women. The remedies are the antispasmodics, with rest. Sometimes tonics are useful, such as the muriated tincture of iron (73). The bowels should be carefully regulated.

Fainting, which occurs before or at the time of quickening, is sometimes very troublesome. The proper treatment is the avoidance of fatigue, and, during the fainting fit, the recumbent posture, cool air, application of cold water to the face, and ammonia to the nose.

Cough is sometimes present. It is caused by the upward pressure of the diaphragm against the lungs, by which they are irritated and convulsed. The remedies may be selected from the cough preparations among the prescriptions.

Heartburn may be relieved by 10 gr. doses of bicarbonate of soda taken in water after meals. Ten grains will be equal in amount to that quantity which may be scooped up on a five-cent piece.

Varicose Veins. — These cannot be removed during pregnancy; but they may be relieved by great care of the bowels, and by wearing tight bandages, or elastic stockings.

Swelling of Lower Limbs is caused by pressure of the enlarged womb upon the veins; and may be relieved by care of the bowels, and diuretics (130).

Itching of the Genitals may be much relieved by borax, camphor, etc. A four-per-cent solution of cocaine, painted on, gives most relief, and is most curative.

Miscarriage. — *Abortion.*

WHEN a woman in the family way throws off the contents of her womb, or loses her child, during the first six months, the accident is a miscarriage, or abortion; when the same thing happens during the last three months of her term, it is a premature labor.

Symptoms. — If abortion occur during the first month after conception, the symptoms may not attract much attention or, may be regarded only as an irregularity of menstruation. Occurring at later periods, it is frequently indicated by some feverishness, coldness of the feet and legs, a puffed-up condition of the eye-lids with purplish discolorations, shooting pains in the breasts, which become soft, pains in the back, bearing-down pains in the lower part of the bowels, which come and go, and at length take the character of real labor pains. As these pains increase, blood begins to appear, and, sooner or later, the bag of water breaks, and the foetus is thrown off.

Causes. — These are very numerous. Some of the principal are, displacement of the womb; ulceration of its neck; syphilitic disease of the foetus received from the parent; too much exercise; heavy lifting; falls, particularly when the woman comes down upon the feet, and is heavily jarred; emetics; powerful purges; and too much nuptial indulgence.

Treatment. — Where the symptoms are but slight, nothing may be required more than a little caution for a few days, and rest in the horizontal posture.

Neither very hot nor cold drinks should be used, the bowels should be made quiet, liquid diet should be given, and if restless or in much pain, 8 to 10 drops of laudanum in water may be given every two or three hours for five or six doses, care being taken that at the first onset of sleepiness the medicine is stopped. Should pain persist and flowing accompany it, the chances of preventing the abortion are poor, in which case take either linen or absorbent cotton or a strip of gauze, (any of them must be sterilized) and introduce into the vagina with as much pressure as can be used. This will usually stop the flow, though in many cases it will not prevent the abortion but will allow time to call a physician who will be needed in such cases. As blood-poisoning causes such a large per cent. of deaths all precautions as advised under the chapter on antiseptic surgery should be followed.

If the abortion cannot be prevented, — especially in the latter months of gestation, — then the case is to be permitted to go on, and to be treated the same as a natural labor.

Abortion (*Criminal*).

MANY married people who consider the bearing of children a burden, and those who suffer from a lapse of virtue, are tempted to commit abortion.

I wish it were possible for me to express to them the sin and folly of such a course. The sufferings and evils that almost always follow are far worse than any care or shame which come from letting nature take its course. Any crime against nature is sure to be punished. In this case, consumption, nervous prostration, and various womb complaints are the usual accompaniments, ruining the future life or usefulness of the woman, until finally life becomes a burden to herself and friends; it usually being impossible to obtain a cure, though she seek it carefully and with tears. No conscientious physician will commit abortion. She will be obliged to trust herself in the hands of quacks and rascals, who commit the crime either with medicine or instruments, in one case ruining the digestion, in the other the womb. Nature has not provided any way in which it can be done with safety, and it is justifiable in no case except when it will save the life of the mother.

Prevention of Pregnancy.

THERE are many cases in which, on account of some contagious or hereditary disease, it is not advisable for the wife to become pregnant. It is not always advisable for a wife to have children too fast, the constitution not being strong enough to stand the strain of bearing children, or the care of bringing them up. In such cases, while

it would be wrong to commit abortion, it would be desirable to avoid pregnancy. I do not agree with many of the fashionable women of this age who consider the bearing of children a burden, and who do not know the joy of a baby in the house. How little they realize that the happiness and pleasure of a family of children is far greater than the care. That love makes labor light. It is hard for the young to realize the lonesomeness of childless old age.

While it may not be best to have children too fast when young, they must realize that if protective measures are carried on too long it will be impossible for the woman to become pregnant. Nature has provided a reasonable way; if there is no coition for ten days after the courses, or three days before, the chances of pregnancy are much diminished. Douching with warm or tepid water (never on any condition use cold water), *immediately* after coition, is perhaps the most commonly used method to prevent conception. The addition of carbolic acid (one teaspoonful to the pint of water) is an extra safeguard. Two quarts of water is none too much to use, although a pint might be sufficient. The safest, least harmful method to the woman with which I am acquainted, consists in the insertion into the vagina, as high as possible, of a tampon of wool. This piece of wool must first be moistened with glycerine and water, or vaseline, and bound by a small string to its centre. It should be about two inches square, possibly a bit smaller for some women. It is most easily inserted by the woman when lying on her back. After coition, this wool is withdrawn by means of the string, and a warm douche taken. This procedure is not only certain to prevent conception, but is absolutely devoid of danger.

There are condoms made of fine rubber, which can be bought of druggists, which are absolutely safe; before use they should be wet with soap-suds or vaseline. This is not a healthy habit, and I would not advise its use, except where there is danger of a contagious disease, or where it would endanger the life of the woman by becoming pregnant.

In conclusion, I would say, the nearer a couple live to nature, the better and happier they will be.

Labor. — *Delivery.*

THE expulsion, at full term, of the child, the after-birth, the membranes, and the fluids, constitutes labor, or delivery. It is supposed to occur about two hundred and eighty days after the last menstruation; but authors reckon it differently; in truth, it is not possible to fix it exactly, for it evidently varies in different cases.

When the time of her lying-in arrives, let every woman meet it with calmness and undoubting confidence. There is every reason to encourage this state of mind. Think of the vast multitudes of people in the world. Each once existed in the womb of a mother, and

had to pass through its narrow portals to be admitted to the light. Successful delivery is the *rule*, the world over; and it should be the rule to confidently expect it.

In the midst of the pains of labor, nothing does more to bring to favorable result than courage and patience. Patience is able calmly to survey all the difficulties before her, because she never attempts to encounter but one at a time. There is much philosophy in the story of the "*discontented pendulum*," which got discouraged, one morning, from reflecting how many millions of times it would have to swing during succeeding years, but became reassured upon considering that a single stroke cost but a very trifling effort, and that it really had to make *but one at a time*. So it is with labor; its pains, which are really severe and agonizing, will become comparatively tolerable, if the whole attention of the woman be confined to present suffering, and her whole stock of courage and patience be brought to bear upon *one pang at a time*.

Let her resist the temptation to a feeling of haste. Nature will often proceed more evenly and more speedily if allowed to take her own time. A hurry to get through is a great obstacle to successful delivery; it always puts things back.

Symptoms:—One of the first indications that labor is about to begin is, that the woman finds herself *smaller*,—the child having sunk down lower in the abdomen, and she accordingly breathes easier. The genital organs become relaxed and moist, and mucus escapes, which is called "the shows." The woman finds herself disposed to be nervous and fidgety, and perhaps a little depressed in spirits.

When labor has fully set in, it is marked by lowness of spirits, flashes of heat and cold, a great desire to empty the bowels and to make water, and grinding, cutting pains, which grow stronger and more continuous, with intervals of ten or fifteen minutes' ease between. Vomiting in the early stages of labor often occurs, and may be regarded as favorable,—indicating the softening and opening of the mouth of the womb.

Treatment of Labor.—When labor begins, the attention should be directed to the state of the bowels and bladder. The child's head begins early to press upon the bladder and lower bowel, causing the desire to make water, etc.; and these should be immediately emptied to make room for the head to pass more easily. The bowel may be freed by a dose of castor-oil (10), if there is time for it to operate,—but more surely, and more satisfactorily, by an injection. Relief in the bladder may, perhaps, be obtained by a different position of the woman in the act of making water. It is the pressure of the child's head upon the water-pipe which causes the trouble; and to relieve it, the woman should get upon her hands and knees, with her shoulders lower than the hips, so as to throw the child upward and forward towards the cavity of the abdomen. Thus situated, she may often

find it easy to make water, when in the ordinary position it would be impossible. If, however, this manœuvre does not succeed, and the bladder becomes greatly distended, the catheter must be used.

The Bed and Habiliments. — In the next place, fix the bed and the patient's habiliments. Reject feather beds; use the mattress. Cover this with a rubber cloth, if convenient, and then with folded sheets to absorb the discharges, and protect the bed. Let the woman be arrayed in the same garments she expects to wear after the completion of the labor, and let these be well tucked up under her arms, and let the lower portion of her body, from the waist downwards, be enveloped in a sheet. This sheet can be easily removed, and the clean clothes pulled down without greatly disturbing the patient when in the exhausted state which follows labor, and when it would subject her to great fatigue to be obliged to sit up in bed to have her clothes changed. Let her lie upon her left side, with her body shortened by bending forward, so that the muscles may be relaxed; let her head be placed in the middle of the bed, and her feet press against the right foot-post. Around this post a shawl or towel may be fastened, upon which she may be allowed to pull during the pains.

Antiseptic Dressings.

IN one essential particular, the case of the modern woman differs widely from that of our grandmothers. Childbed-fever, blood-poisoning, and other similar germ-diseases, have been from time immemorial the *bête noire* of the lying-in chamber, and the odium of the medical profession. Since the discovery by Sir Joseph Lister, of England, that these diseases were caused by the introduction of germ bacilli into the living tissue, and that to prevent them it is only necessary to kill these germs on all things which in any way come in contact with the mother's private parts, these diseases have become very much less frequent in occurrence, and much less fatal. We know now that the skin and vagina even normally contain living germs which act as scavengers of dirt, and exert a beneficial influence on health, so long as they remain in their natural abodes; let them, however, be introduced into the system through raw surfaces, tears and excoriations consequent on labor, and the group of symptoms generated by this poison is truly frightful to think of.

To avert such catastrophes, it must be the aim of the physician and nurse, and even the patient, to use scrupulous care in keeping away from the patient anything which has not first been rendered absolutely clean or germ-free.

It thus becomes evident that, first of all, as soon as labor sets in, the thighs and privates should be thoroughly washed with soap and some antiseptic, as, for instance, a five per-cent solution of carbolic-acid, or better, sulpho-naphthol solution, which may be made by adding one-half teaspoonful of sulpho-naphthol, or "oil of milk," to a quart of

water; better still is a solution of corrosive sublimate of the strength of one part in two or three thousand parts of water. This poisonous drug is best bought in tablet form, so that by adding one tablet to two quarts of water, we have the required solution. During labor, and even after, all napkins and cloths used to protect or wipe the woman, must be wet in one of these solutions, or otherwise disinfected. Every examination by the physician or nurse must be made only after thorough scrubbing of the hands with soap and some disinfectant. The napkins used may either be wrung out of these solutions, or steamed an hour before using.

By such precautions we may expect to avoid blood-poisoning. The nurse must always wash and disinfect her hands before giving a douche or handling the patient's private parts. The douche is always a source of vexation to nurses, and the matter may here be thus stated: unless there has been given an order by the physician to the contrary, never use a douche after the baby is born.

Remember the principle of always keeping surgically clean, i. e. *germ-free*, all objects which come in contact with the lying-in woman.

The Presentation.—An examination with the finger is to be made to learn the presentation,—that is, to learn which part of the child comes first into the mouth of the womb.

Head Presentation.—If the head present, the labor will probably go on without the need of medical aid. But in all labors there is a liability to dangers from unforeseen accidents, which renders the attendance of an intelligent physician highly prudential.

Breech or Feet Presentation.—If the feet or breech present, it is desirable to have the first part of the labor proceed slowly, so that the passage may become well dilated, and prepared for a more rapid delivery of the head. If the breech present, do not pull down the feet; let the child come double; it will make more room for the head. If the feet present, let there be no pulling upon them to hasten the birth of the breech.

After the feet and breech have fully cleared the external orifice, the delivery may be judiciously hastened for the purpose of preventing the death of the child from pressure on the umbilical cord, before its head is brought to the air, and the act of breathing thus permitted. For after the pulsations of the cord cease, the child must either breathe or die.

In this kind of presentation, therefore, the child's life is in great danger. After the birth of the lower half of the body, the cord experiences severe pressure, sufficient to interrupt if not wholly prevent its pulsations. It then becomes necessary to hasten the birth of the upper extremities and head by all prudent means. Violence is never in order in midwifery; but considerable force, skillfully directed, may sometimes be safely used. After the shoulders are delivered, the passage of the head may be facilitated by carefully pulling down the

arms. Then, as soon as possible, introduce the finger into the mouth of the child. This will serve the double purpose, perhaps, of permitting a little air to make its way into the child's lungs, and of furnishing a hold by which its head may be gently drawn along into the world.

If there is much delay at this juncture, perhaps in some cases the child's life may be preserved by inserting into its mouth one end of a male catheter, — thus furnishing an open tube for the passage of air, until more vigorous pains shall introduce it into the full liberty of the atmosphere. While the head is yet undelivered, great care should be used to keep the child's body warm by covering it with flannel, and also to keep it in a correct relative position with the head. If the body be incautiously turned round, of course the neck will be twisted; and the child's subsequent delivery with a broken neck will be the miserable result, bringing confusion to the medical attendant, and unhappiness to all concerned.

Arm or Shoulder Presentation. — If the arm or shoulder present, the child will probably have to be turned. In case this cannot be effected, its chest must be opened and emptied of its contents, that there may be room to bring down the head. It is barely possible to avoid a resort to art in this presentation.

Flooding or Hemorrhage, occurring to an alarming extent, is happily one of the rare incidents or consequences of labor. But when it does occur, it demands the most serious and prompt attention.

Profuse bleeding from the womb is most commonly owing to a partial separation of the placenta, or afterbirth, from its attachment to the internal cavity; and it has been observed that the flow proceeds more rapidly from the detached portion of the afterbirth than from the corresponding exposed surface of the womb. A knowledge of this fact has an important practical bearing; for if, in severe cases of flooding, the partially detached afterbirth can be entirely separated, the bleeding will often be speedily arrested.

The most dangerous floodings occur in cases of *placenta previa*, when the afterbirth is over the mouth of the womb. In such cases, when the labor commences, and the womb begins to open itself, the afterbirth of course must be partially separated. These cases, unless promptly relieved by art, may prove fatal in a few minutes. Yet there is ordinarily sufficient time, if it be improved, calmly to choose and pursue the proper treatment. If the flooding be immediately dangerous to life, the child must be turned and delivered, or the *tampon* or *plug* be applied, as directed under the head of abortion. This expedient is used when, through rigidity of the mouth of the womb, the delivery is inadmissible.

Before Delivery. — In all cases of flooding, we prescribe quiet, the recumbent posture, cold applications to the abdomen and the external genitals, and the internal administration of astringents and anodynes (151).

After Delivery, our object is to promote contraction of the womb by cold applications and frictions externally, or, if necessary, by the introduction of the hand into the womb, for the purpose of removing the afterbirth, clearing out clots, or stimulating it to shut itself up for the expulsion of the offending substance. Until this contraction is secured, the plug should not be used, lest internal bleeding into the enlarged and expanded womb should be profuse, and fatally exhaust the patient.

After the Child is Born, our first duty is, if possible, to see that it breathes. In the vast majority of cases, the well-known cry which salutes the ear gives proof that the duty is unnecessary. But sometimes we do not hear the welcome sound. The umbilical cord may be once or repeatedly wound around the child's neck, and must be immediately removed to prevent strangulation; or, the child's mouth may be filled with phlegm, or some sticky mucus, which must be poked out with the finger, and its exit favored by turning the face downward; or, after tedious labors, the child may be born in a very feeble state, and may need the stimulus of cold water thrown suddenly, in small quantities, upon its chest and body, with considerable rubbing, and perhaps the inflation of its lungs with air blown into its mouth.

Tying the Cord. — When breathing is established, a piece of narrow tape or common twine is to be tied tight around the navel-string, about two inches from the child's navel, and the cord is then to be cut off, with a pair of sharp scissors, from half to three quarters of an inch outside the place where it is tied. The child is then to be delivered to the nurse.

The cord should be tied twice; the first about two inches from the child's body and again an inch and a half farther away. The cord is then cut between the two places. The object of the first tie is, of course, to prevent the child bleeding to death. The second is to prevent the blood from the after-birth or placenta soiling everything about the bed.

Washing the Child. — The child is now, while the physician is attending to the mother, to be washed and dressed by the nurse. Its skin is at this time covered with a suet-like substance, called the *vernix caseosa*. To remove this, a coat of warm sweet oil or lard may be lightly rubbed and mixed with this substance and then washed off with warm water and castile soap. It is not material that this coating should be absolutely all removed at the first washing; but the soap and water should be again gently applied in eight or ten hours from their first use. It is improper to use spirits for this cleansing. All rough rubbing must be avoided as injurious to the delicate skin of so tender an infant. Washing with cold water would lower the temperature to a dangerous degree, and should in no case be allowed.

Removal of the After-Birth. — The woman having rested fifteen or twenty minutes, a little gentle soliciting or pressure on the womb

will generally bring away the after-birth. If, however, any serious obstacle prevent its expulsion, it may be slowly and cautiously taken away by the hand introduced.

Cleansing the Bed, and Applying the Swathe. — Upon the removal of the afterbirth, a disinfected napkin is immediately applied to the external organs, a drink of water or tea administered, and another rest of an hour or more allowed. The swathe may consist of a towel pinned snugly around the body, or of a cloth, cut and fitted exactly for the purpose. Its object is to afford a firm and steady support to the contracting womb.

The Dressings for the Child's Navel should be so fixed that the navel-string or cord will not be left in contact with the healthy skin. To effect this, make a hole large enough to admit the cord in the centre of a piece of linen cloth four inches square; pull the cord through this hole, leaving the cloth lying flat upon the child's belly; then, having bandaged the cord down to the belly, fold the cloth over it, and apply the belly-band. The interposition of these dressings will thus keep the cord, which is dead and in process of decomposition, from irritating, and perhaps excoriating the living flesh, with which it must otherwise be in close contact. To wrap the stump of the cord in fresh absorbent cotton is another neat, dry, and practical method of treating it.

Never try to hasten the dropping of the cord if it occurs within a reasonable time, and from four to ten days may be expected to elapse before this event takes place. If pus appears, it shows that infective germs have gained entrance since the birth of the child, and a mild antiseptic dressing must be kept on or inflammation may strike in and the child die of blood-poison.

Nourishment of the Child, etc. — After being dressed, the child should be kept next the body of the mother or nurse, that it may receive the natural warmth thus to be derived. Its nourishment should be obtained exclusively from the mother's breast. If it is hungry, be sure and keep it so. There is nothing more appropriate than a hungry child all ready to take hold and exhaust the full and almost bursting breast on the third day, when the milk has come. Alas! How many children have been fed on sweetened water, and on milk and water, till they have lost all instinctive idea of, and all appetite for, nursing! and how many bowel complaints and broken breasts have been the miserable consequence! But meddling friends are afraid the "little dears" will starve; and therefore they must first be made sick by unnatural diet, and then for their cure be treated to that filthy, harsh, and indecent substitute for medicine, *chamber-lye and molasses!*

But it may be asked, "must not the child be fed at all, if it is hungry, and cries a great deal, and there is nothing in the mother's breast for it?" Such cases will be exceedingly rare, if the breasts have

been properly solicited from the first by a hungry child. When they do occur, being themselves exceptions, their treatment must be exceptional; but, even then, only so far as is absolutely necessary. If fed at all, the child should not be fed to satiety, but as little as the circumstances will possibly permit. The great rule remains: keep the child as hungry as possible till the milk comes. When it has to be fed, imitate the mother's milk as nearly as possible in the preparation of the artificial diet. A little sweet cream, warm water and sugar, should be so mingled, that in warmth, richness, and sweetness, the mixture may closely resemble human milk. (See page 447.)

Diet of the Mother. — For the first few days after confinement, the most appropriate diet for the mother is gruel, cocoa, rice-water, crust coffee, or some similar liquid nourishment. Different constitutions, however, need somewhat different management.

A woman naturally robust, and of full habit, should confine herself more strictly, and for a longer time, to this light diet, than one who is more slender and feeble. In some cases, weakly women require the juice of meat, and even wine or ale, as early as the second or third day. If she be subject to canker, or nursing-sore mouth, a generous diet is particularly serviceable. After the first week, she may gradually return to her customary diet.

Costiveness may be treated with the usual remedies. It was an old rule to give a dose of castor-oil on the third day, when there is a little increase of excitement in the system, from the filling of the breasts. This is not always necessary, and in most cases an injection would be far better. The mother should stay in bed from three to four weeks, according to the state of her general health. A little time now is a great gain later.

The Perpendicular Position. — During the first month, let the woman avoid being often or long on her feet. This is a very essential caution to avoid prolapsus, or falling of the womb, with all its attendant weaknesses and pains, and to ensure a good "getting up," with a sound womb, in the right place, and subsequent months of health and enjoyment.

Milk Leg. — *Phlegmasia Dolens.* — *Crural Phlebitis.*

THE popular idea is, that in this disease the woman's milk has fallen into her leg, which has inflamed. This is of course absurd. As to the real nature of the complaint, there are various opinions, — some holding it to consist in inflammation along the sciatic, crural, and pubic nerves; others, that it is an inflammation of the lymphatics of the groin which causes it; others, that it is an inflammation of the crural veins. The fact of the matter is that this disease is one of the many evidences of septic matter entering the circulation and setting up local trouble where it is deposited. It is, in other words, a mild form of pre-existing blood-poisoning.

Symptoms. — The disease begins in from two to seven weeks after delivery, with pain in the lower bowel, groin, or thigh. The pain is more violent when the thigh is extended. In a day or two, the pain diminishes, and the limb begins to swell, frequently in the calf of the leg first, thence extending upward; but generally in the groin, and extending gradually down. The skin becomes entirely white, smooth, and glossy, does not pit when pressed, is painful to the touch, and is hotter than the skin upon the other limb. In connection with this local disease, there is general fever, with small and rapid pulse, thirst, etc.

Treatment. — The patient must lie flat upon her back, with the swelled limb placed upon pillows, or a bolster, raised so that the foot shall be a little higher than the hip, and then charged not to put her foot down upon the floor until she is very nearly well.

Take a large piece of flannel,—Dr. Meigs says an old flannel petticoat, with the hem and the gathers cut off—and dip it in vinegar and *hot* water, equal parts; wring it out, and cover the whole limb with it. Put a piece of blanket or oiled silk over it to keep it from wetting the bed. Repeat this and keep it up for six hours. When it becomes tedious to the patient, remove it, and bathe the limb with warm sweet-oil, two parts, and laudanum, one part, and cover it with flannel. In two or three hours, return to the first application of hot water and vinegar. Continue this for five or six hours, and then take warm sweet-oil and laudanum; and thus pass from one to the other until the inflammation is subdued, or, as Dr. Meigs says, till the calf of the leg can be shaken.

If the bowels are confined, let them be gently moved by some mild physic (13), (14), (18), (25), (27), (41).

In many cases, diuretics and cathartics *combined* will be proper (302), or diuretics only (128), (130).

While the inflammation lasts, and there is fever, the tincture of *veratrum viride* must not be forgotten.

If recovery does not take place after the active inflammation has subsided, the limb should be bandaged from the toes to the groin.

Wrap up the leg in wet flannels, covered air-tight with rubber cloth, and great quantities of water will exude from the leg.

Child-Bed Fever. — *Puerperal Fever.* — *Septicæmia.* — *Blood-Poisoning.*

FEW complaints more justly excite the dread of the practitioner than this. It cuts down woman at a time when she can least of all be spared by her young offspring, and at a moment when she most excites the love and sympathy of her whole family. It is a terrible disease.

Until after the discovery of the germ character of many diseases, this fearful scourge was only suspected by medical men to be con-

tagious. It has, however, long since been found to be highly contagious and propagated by the ordinary routes of travel by physician, nurse, friend, etc., who come in contact with women about to be confined or with people who have open wounds.

We know that when a woman is confined the germs which naturally belong on the skin and in the vagina, if introduced into the little lacerations and wounds which are liable to ensue during labor, set up a violent form of blood-poisoning, which, for its severity, rapidity of development, and direful consequences, surpasses all other infectious diseases. Child-bed fever is purely and simply a germ-disease, caused by unclean hands, unclean instruments, unclean napkins, or, in fact, anything which contains germs, being brought in contact with the mother. For a further understanding of this causation, see articles on Asepsis, Antisepsis, etc.

It becomes quite necessary for a woman to regard herself as about to undergo a surgical operation when she is to be confined, for the simple reason that she should be prepared for the labor just as the patient is for the operation, that she may have all the advantages of skilled nursing and the many little antiseptic precautions which render not only operations but labor itself safe.

Symptoms.—The train of symptoms belonging to this dreadful malady are too well known to many to repeat them in much detail. The first that one carefully observant of the sick one notices, is a slight rise of temperature, then perhaps follows a chill, sweating and headache; discharges begin to smell badly, the bowels enlarge from the formation of gas; the stomach is upset, and finally, if the disease is not checked, the infection spreads to the tubes and ovaries and into the general abdominal cavity, when death soon steps in to end the frightful scene.

Treatment.—The nurse should always be on the alert to discover the least rise in temperature or any beginning odor; it is just here that valuable time is often lost. The womb has become infected, but as yet the septic inflammation is only on the inside of the organ. At this point vigorous measures must be at once inaugurated and the womb thoroughly irrigated with some disinfectant solution, like the corrosive sublimate solution, with carbolic acid solution or sulpho-naphthol solution. If this measure, repeated every eight to twelve hours, does not speedily correct the odor, lower the temperature and improve affairs at once, a thorough curetting of the entire lining of the womb must be made, as described under womb-diseases (page 399) and the organ daily irrigated or packed with iodoform gauze.

In many cases the womb and its belongings may have to be removed entirely. Blood tonics must be employed from the first, and the infection thoroughly removed lest subsequent womb troubles ensue.

It is a well known medical fact that in blood-poisoning the use of alcohol may be pushed to a degree that would be thought unwise in

other troubles. Enough whiskey or brandy should be given to a patient to keep him stimulated until such time as the temperature and the pulse are in normal condition.

The chief preventive of this disease is extreme cleanliness and care in warding off its causes.

Puerperal Convulsions. — *Eclampsia.*

DURING the latter part of pregnancy, and even during the lying-in period, a pregnant woman may be suddenly seized with a convulsion from which she may never recover consciousness. These fits generally last a few minutes, and complete consciousness follows with a terrific headache; from one to a hundred more attacks may ensue. The urine usually is found heavily loaded with albumen, and contains all the evidences of serious kidney disease.

Causes. — These disorders are supposed to be due to the pressure on the kidneys and its vessels by the increasing growth of the child. Some cases, however, remain still unsatisfactorily explained.

To avoid any such sudden surprises women should have their urine examined every week or two in the latter part of pregnancy.

Symptoms. — The disease is usually ushered in by some slight frontal headache, by swelling of the feet, ankles and eyelids; these are symptoms of impending trouble, and precautions should at once be taken to ward off the consequent disease. The urine becomes scanty, thick and smoky; the face or eyelids twitch, and soon the fit comes on, superinduced by the large amount of urea retained in the blood in consequence of the crippled condition of the kidneys, which normally throw off these poisonous products.

Treatment. — In most cases the womb must be immediately emptied of the child and pressure thus moved from the kidneys, which are stimulated to secrete freely. The fits are for the time being controlled by the inhalation of ether or chloroform. Bleeding, the free use of *veratrum viride*, and the use of chloral or even morphine will materially aid the case toward recovery.

Sweating the patient will many times turn the tide in favor of recovery. Covering the body with hot wet sheets and over these several dry blankets may be placed. It is advisable to keep the head cool by means of cold cloths or an ice bag. A subcutaneous injection of apomorphine given in 1-10 gr. dose will start the perspiration. The hot air bath by means of a kerosene or alcohol lamp under a stovepipe funnel bent at a right angle over the foot of the bed is another valuable means to accomplish the same result. The temperature of the heated air should be 110° to 115° and the patient gradually cooled off after twenty to thirty minutes perspiration.

It is a very fatal disorder if left to itself, the patient not infrequently dying in the first convulsion, after prolonged unconsciousness.

Here again the early discovery of the disease will often be sufficient to turn the tide in a favorable direction.

Flooding and Hemorrhage. — *Placenta Praevia.*

SOMETIMES during the latter months of pregnancy quite a little hemorrhage starts up from the fact that the afterbirth, which normally is attached to the side of the womb, becomes engrafted into the lower segment so as to cover the opening into the womb. This latter is often separated from its moorings and considerable hemorrhage ensues, which may vary from a small to an extremely large and fatal amount. The physician should be summoned immediately and labor induced at once, if this condition is really found to exist.

Flooding after labor is due to a relaxed womb or some open blood-vessel. The womb is to be seized and squeezed together into a small mass, driving out clots; one teaspoonful of ergot in a little hot water is to be taken, and the foot of the bed elevated till the arrival of the doctor.

Nursing Sore Mouth.

NURSING women sometimes suffer terribly with this complaint. It begins with a scalding sensation upon the tongue, a pink color in the roof of the mouth, and a hot, watery discharge from the mouth. After a few days, small ulcers appear on the tongue, and in the throat. Costiveness is generally present; but when the ulceration extends to the bowels, diarrhoea occurs. It comes to an end upon weaning the child.

Treatment. — To relieve costiveness, give some gentle cathartic (12), (15), (25), (34), (36).

Iron in some of its forms and combinations is highly necessary (61), (71), (73), (349).

Gargles will frequently do much good (227), (229), (230), (235), (243), (244), (347), (350).

The diet must be simple, nourishing, and digestible, consisting of stale bread, tender beefsteak, broths, etc.

Inflammation of the Breast. — **Broken Breast.** — *Mammary Abscess.*

THE mammary gland, or gland which secretes milk in the human breast, consists of a number of ducts, passing inward from their termination in the nipple, and then spreading around like the roots of a tree, and terminating in minute glands. The mammary tubes are straight ducts, ten or twelve in number, having their mouths at the centre of the nipple, dilating at its base into larger reservoirs, which extend some distance into the gland. (Fig. 146.)

When milk is first formed, after confinement, these tubes and reservoirs sometimes get so full and hard that they crowd and compress each other, making it difficult to remove the milk, and under these circumstances, the breast will inflame.

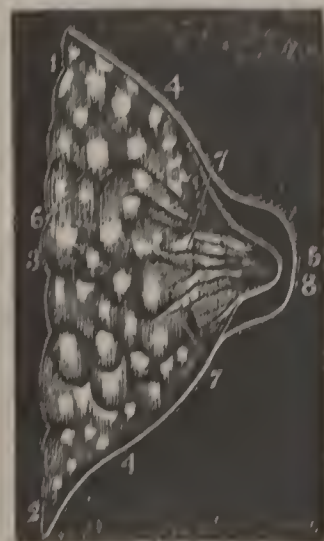


FIG. 146.

Symptoms. — The inflammation generally begins with a chill, followed by fever, and pain of a shooting kind, which is much increased by pressure. An examination will generally reveal a circumscribed, hard, and painful tumor, even before there is any redness on the surface. After a time, the swelling spreads, the skin becomes of a dusky red, is hot and shining, will frequently pit a little on pressure, and soon gives a sense of fluctuation. Upon the formation of matter, the breast is enlarged, and there is local tenderness and throbbing pain.

This complaint may be caused by taking cold, irregularities in diet, or by mental emotion; but more commonly it is caused by accumulation of milk within the ducts; still more commonly by septic matter from the uterus entering the circulation and causing a localized blood-poisoning.

Treatment. — These afflictions may generally be *prevented* by keeping the breasts well drawn. It is the duty of a nurse to look well after this matter, and see that the breasts do not get hard and distended with milk.

But when the inflammation has fairly set in, the first aim should be to prevent, if possible, the formation of matter.

Active purging should be resorted to at once (29), (32). Sweating should be encouraged by the tincture of *veratrum viride*. If the object be to prevent the formation of matter, cold lotions, or cold water compresses should be used freely; but if two or three days have passed before active treatment, the suppuration will go on, and it is better to use *warm* applications. Dewees says warm vinegar is the most beneficial as well as the most comforting. Poultices and warm fomentations are much used. Some apply stimulating liniments, made of essential oils, etc. (195), (198). Leeches are often used with advantage. They should be applied, not upon the breast, but just below it.

During the progress of the disease, especially after the abscess is opened, the breast should be supported, and prevented from hanging down, by long strips of adhesive plaster carried below and around it. By this means a gentle pressure is kept up by which the matter is more easily evacuated.

The breast should be opened with a lancet as soon as the abscess points, or fluctuation is discovered. Should the ulcer not heal, an astringent wash, such as a weak solution of nitrate of silver (211), may be applied to it once or twice a day.

During the discharge of matter, the system of the patient should be supported by a nourishing diet, wine, tonics, etc. To lift up the breasts, and at the same time gently compress them with a gauze or thin flannel bandage, is one of the best methods of treatment.

Sore Nipples.

WOMEN suffering from excoriated nipples are apt to keep the infant chiefly to the healthy breast, and only to apply it to the tender side for the purpose of obtaining present ease from the pain of over-dis-

tension. In this way the ducts remain always full, and are apt to get inflamed. Sore nipples, therefore, are to be attended to as much on account of the evils to which they lead, as of the suffering they directly occasion.

The excoriation of the nipples begins as a chaf. This shows no tendency to heal; and the child's mouth being often applied, rubs off the skin around the crack, and this naked surface soon becomes an ulcer. These ulcers are sometimes only on the surface; at other times they are profound, going deep into the substance of the nipple.

Treatment. — These excoriations and ulcers might be easily healed, were it not that the newly-formed skin is apt to be continually rubbed off by the child's mouth in the act of nursing. Two things are therefore to be done, — to favor the healing, and to protect the tender part from renewed injury.

For the first object, a strong infusion of green tea or port wine may answer very well in ordinary cases. A little alum or borax, dissolved in rosewater, or water (201), (202), is often used. A weak solution of sulphate of zinc, or sulphate of copper, or nitrate of silver (209), (211). But one of the very best articles is composed of glycerine and tannin (306).

To protect the nipple from injury in the act of sucking, use a shield made of India-rubber. When the infant is not at the breast, the nipple should be covered by a shield.

MARRIED LADIES' PERPETUAL CALENDAR.

THE utility of these tables, serving as a faithful and confidential friend in matters of urgent interest, cannot fail of being perceived. The young and newly-married might be spared an unpleasant amount of embarrassment by consulting the Calendar as to the time of confinement, which, in reckoning the full period of gestation 280 days from conception, may be very nearly approximated; or, in the event of the time of conception being uncertain, from the period of quickening, which she can usually note, she may reckon 140 days. It will be perceived that the Calendar has three columns of figures, denoting the days of the months noted at the head of each. The first column gives the date of conception; the second, that of the period of quickening; and the third, that of delivery. Thus, if a lady dates the period of conception January 1, the quickening will occur May 20, and confinement about the 8th of October following; or, if she is ignorant of the time of conception, by consulting the middle column as to the time of quickening, if it occurs May 20, she may expect her confinement to occur about the 8th of October following, or 140 days after the period of quickening. The date in the first column is that of conception; the corresponding date in the second column is that of quickening; and the corresponding date in the third column that of confinement.

JANUARY.			FEBRUARY.			MARCH.			APRIL.		
Concep- tion.	Quick- ening.	Deliv- ery.	Concep- tion.	Quick- ening.	Deliv- ery.	Concep- tion.	Quick- ening.	Deliv- ery.	Concep- tion.	Quick- ening.	Deliv- ery.
Jan.	May	Oct.	Feb.	June	Nov.	March	July	Dec.	April	Aug.	Jan.
1	20	8	1	20	8	1	18	6	1	18	6
2	21	9	2	21	9	2	19	7	2	19	7
3	22	10	3	22	10	3	20	8	3	20	8
4	23	11	4	23	11	4	21	9	4	21	9
5	24	12	5	24	12	5	22	10	5	22	10
6	25	13	6	25	13	6	23	11	6	23	11
7	26	14	7	26	14	7	24	12	7	24	12
8	27	15	8	27	15	8	25	13	8	25	13
9	28	16	9	28	16	9	26	14	9	26	14
10	29	17	10	29	17	10	27	15	10	27	15
11	30	18	11	30	18	11	28	16	11	28	16
12	31	19		July		12	29	17	12	29	17
	June		12	1	19	13	30	18	13	30	18
13	1	20	13	2	20	14	31	19	14	31	19
14	2	21	14	3	21		Aug.			Sept.	
15	3	22	15	4	22	15	1	20	15	1	20
16	4	23	16	5	23	16	2	21	16	2	21
17	5	24	17	6	24	17	3	22	17	3	22
18	6	25	18	7	25	18	4	23	18	4	23
19	7	26	19	8	26	19	5	24	19	5	24
20	8	27	20	9	27	20	6	25	20	6	25
21	9	28	21	10	28	21	7	26	21	7	26
22	10	29	22	11	29	22	8	27	22	8	27
23	11	30	23	12	30	23	9	28	23	9	28
24	12	31			Dec.	24	10	29	24	10	29
		Nov.	24	13	1	25	11	30	25	11	30
25	13	1	25	14	2	26	12	31	26	12	31
26	14	2	26	15	3			Jan.			Feb.
27	15	3	27	16	4	27	13	1	27	13	1
28	16	4	28	17	5	28	14	2	28	14	2
29	17	5				29	15	3	29	15	3
30	18	6				30	16	4	30	16	4
31	19	7				31	17	5			

MAY.			JUNE.			JULY.			AUGUST.		
Concep- tion	Quick- ening.	Deliv- ery.	Concep- tion.	Quick- ening.	Deliv- ery.	Concep- tion.	Quick- ening.	Deliv- ery.	Concep- tion.	Quick- ening.	Deliv- ery.
May	Sept.	Feb.	June	Oct.	March	July	Nov.	April	Aug.	Dec.	May
1	17	5	1	18	8	1	17	7	1	18	8
2	18	6	2	19	9	2	18	8	2	19	9
3	19	7	3	20	10	3	19	9	3	20	10
4	20	8	4	21	11	4	20	10	4	21	11
5	21	9	5	22	12	5	21	11	5	22	12
6	22	10	6	23	13	6	22	12	6	23	13
7	23	11	7	24	14	7	23	13	7	24	14
8	24	12	8	25	15	8	24	14	8	25	15
9	25	13	9	26	16	9	25	15	9	26	16
10	26	14	10	27	17	10	26	16	10	27	17
11	27	15	11	28	18	11	27	17	11	28	18
12	28	16	12	29	19	12	28	18	12	29	19
13	29	17	13	30	20	13	29	19	13	30	20
14	30	18	14	31	21	14	30	20	14	31	21
15	Oct.		15	Nov.		15	Dec.		15	Jan.	
16	1	19	16	1	22	16	1	21	16	1	22
17	2	20	17	2	23	17	2	22	17	2	23
18	3	21	18	3	24	18	3	23	18	3	24
19	4	22	19	4	25	19	4	24	19	4	25
20	5	23	20	5	26	20	5	25	20	5	26
21	6	24	21	6	27	21	6	26	21	6	27
22	7	25	22	7	28	22	7	27	22	7	28
23	8	26	23	8	29	23	8	28	23	8	29
24	9	27	24	9	30	24	9	29	24	9	30
25	10	28	25	10	31	25	10	30	25	10	31
26	11	March	26	11	April	26	11	May	26	11	June
27	12	1	27	12	2	27	12	2	27	12	2
28	13	2	28	13	3	28	13	3	28	13	3
29	14	3	29	14	4	29	14	4	29	14	4
30	15	4	30	15	5	30	15	5	30	15	5
31	16	5	31	16	6	31	16	6	31	16	6
32	17	6									
33		7									

SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
Concep- tion.	Quick- ning.	Deliv- ery.	Concep- tion.	Quick- ening.	Deliv- ery.	Concep- tion.	Quick- ening.	Deliv- ery.	Concep- tion.	Quick- ening.	Deliv- ery.
Sept.	Jan.	June	Oct.	Feb.	July	Nov.	March	Aug.	Dec.	April	Sept.
1	18	8	1	17	8	1	20	8	1	19	7
2	19	9	2	18	9	2	21	9	2	20	8
3	20	10	3	19	10	3	22	10	3	21	9
4	21	11	4	20	11	4	23	11	4	22	10
5	22	12	5	21	12	5	24	12	5	23	11
6	23	13	6	22	13	6	25	13	6	24	12
7	24	14	7	23	14	7	26	14	7	25	13
8	25	15	8	24	15	8	27	15	8	26	14
9	26	16	9	25	16	9	28	16	9	27	15
10	27	17	10	26	17	10	29	17	10	28	16
11	28	18	11	27	18	11	30	18	11	29	17
12	29	19	12	28	19	12	31	19	12	30	18
13	30	20		March			April			May	
14	31	21	13	1	20	13	1	20	13	1	19
15	Feb.		14	2	21	14	2	21	14	2	20
16	1	22	15	3	22	15	3	22	15	3	21
17	2	23	16	4	23	16	4	23	16	4	22
18	3	24	17	5	24	17	5	24	17	5	23
19	4	25	18	6	25	18	6	25	18	6	24
20	5	26	19	7	26	19	7	26	19	7	25
21	6	27	20	8	27	20	8	27	20	8	26
22	7	28	21	9	28	21	9	28	21	9	27
23	8	29	22	10	29	22	10	29	22	10	28
24	9	30	23	11	30	23	11	30	23	11	29
25		July	24	12	31	24	12	31	24	12	30
26	10	1		Aug.			Sept.				Oct.
27	11	2	25	13	1	25	13	1	25	13	1
28	12	3	26	14	2	26	14	2	26	14	2
29	13	4	27	15	3	27	15	3	27	15	3
30	14	5	28	16	4	28	16	4	28	16	4
31	15	6	29	17	5	29	17	5	29	17	5
32	16	7	30	18	6	30	18	6	30	18	6
33			31	19	7				31	19	7

CARE OF CHILDREN AND THEIR DISEASES

A thorough and concise discourse on the care and rearing of
children; the prevention and cure of all the
complaints and diseases they
are subject to.

CARE OF CHILDREN AND THEIR DISEASES.

Pure Air. — The first want of a child is a plenty of fresh air; and this want never ceases to the end of life. Impure air kills thousands of infants. Out of 7,650 born in the lying-in hospital of Dublin, 2,944 were destroyed by impure air within two weeks after birth.

Children should be kept in the open air as much as possible, and in well-ventilated rooms when indoors. It is wrong, when infants are sleeping, to cover their faces with bed-clothes, or draw curtains around their cots, or to envelop their heads in blankets and shawls when carried in the open air.

The Skin. — The health of infants requires that their skin should be kept clean. Unless this is done they are liable to suffer much from cutaneous and other diseases. The skin of a new-born child is covered with a white, unctuous matter, called the *vernix caseosa*. It is injurious to let this remain for any length of time after birth. To remove this, Dr. Dewees recommends that the child be smeared with hog's lard or sweet oil, and then washed with soap and water. Dr. Eberle says, smear with yolk of egg, and then wash with simple warm water.

The young child should be washed every day with warm water, — then, after a time, with tepid water, then with temperate, and finally, after it is some months old, with cold water. This, if persevered in through childhood and youth, will ward off a thousand ills and sicknesses to which the young are liable.

The Clothing of Children should be so adjusted as to give their limbs ample play, and should be thick enough to keep them *warm*. They ought to have flannel next the skin in winter, and cotton in summer. At the risk of wounding some nice people's feelings, I must add that the *fashion* of a child's clothes is not important.

The Food. — The natural and proper food of a young child is its mother's milk. To this it should be confined, unless prohibited by imperative circumstances, until a portion of the teeth are cut. When the mother cannot nurse her child, the breast of a suitable nurse should, if possible, be supplied. If the infant need any more food

than is supplied by the breast, give cow's milk and water, sweetened with a little loaf sugar. The nursing bottle, if used, must never be permitted to get sour.

Health of a Nursing Woman. — During nursing the greatest attention to health is required by the mother or the nurse. A woman of a consumptive constitution should never nurse an infant. Nourished at the breast of such a mother, the child, who has inherited her constitution, will be the more likely to fall a victim to her disease.

Passions of a Nursing Woman. — Let the woman who nurses a young child be careful of her passions. An irritable disposition, giving rise to gusts of violent passion, may so alter the character of the milk as to throw the child into convulsions. Grief, envy, hatred, fear, jealousy, and peevishness, unfit the milk for nourishing the child, and often cause the child's stomach to be much disordered.

The Diet of the Nurse should receive strict attention. It should be plain and wholesome, and the amount should never be excessive. Her drink should be simply water and non-stimulating and nourishing drinks such as the various preparations of cocoa, etc. She should take gentle daily exercise in the open air.

Wet Nurses. — If for any reason it should be necessary to wean the baby, or the mother cannot nurse the child, then we must select a food the most like that of the mother.

Wet-nurses formerly were quite popular among the well-to-do to supply this food; but as in her selection there are so many exacting requirements, she is fast becoming obsolete. There are three requisites for a good wet-nurse: she must be of good health, of good moral character, and be able to supply plenty of good healthy milk.

If she has any tubercular, scrofulous, syphilitic, insane or osseous history; if she is menstruating, or pregnant, or is in anywise below par in health, she is necessarily disqualified as a nurse for any child; only your physician may be able to detect these evidences and perhaps not even he. If, on the other hand, she is occasionally given to blues, has a violent temper, is jealous, or fretful, or worries about her own child, or goes into dangerous company when away from the house, then you have added a second disqualification. Again, her supply of milk must be good as shown by an analysis and the health and growth of her own child. A nurse may pass muster to-day in reference to this third requisite, but perhaps not in a week from to-day.

Seeing that the average wet-nurse comes from a lower stratum of society, even if not from the criminal class, that she is in consequence more liable to acquired disease and contagion, that she is more than likely to bring trouble into the household rather than to relieve the household of it, it will be extremely difficult for you to find such a person as can furnish all the required conditions of a safe wet-nurse.



Hold the baby this way.



Not this way.



To quiet the baby.



Hold the baby this way when feeding.

It has been found, therefore, that artificial feeding gives better satisfaction and is quite as safe.

Nursing Bottles. — There are nursing bottles innumerable, few of which are of practical value. A simple bottle with plain black nipple is all that is requisite for successful feeding at the hands of a careful and cleanly mother or nurse. There should be several bottles and several nipples, the latter to be kept in soda water or other simple alkaline solution when not in use. A pinch of soda to a cup of water is of sufficient strength. After a bottle has been used it should be thoroughly scalded with hot water and soda and finally set away filled to the brim with this same solution, till later in the day. Meanwhile, a fresh bottle and a fresh nipple is used, they having first been cleansed with the above solution. The best bottle, however, for nursing in those cases, where for want of time and means the bottle cannot be held by mother or nurse, is one called "The Best." See Figs. 147 and 148, This bottle, like many others, al-

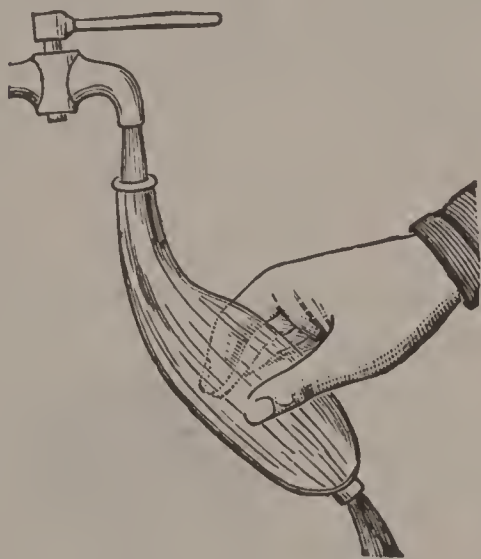


FIG. 147.



FIG. 148.

lows of its resting on the bed, but, unlike many others, it is very readily cleansed, is of easy suction and has a nipple which does not collapse. The accompanying cuts and description are worthy of attention. The peculiar feature of the bottle is a valve or air-inlet in the end admitting air back of the food, thus rendering suction easy. This valve does not leak and cannot be pulled off by the baby, but is easily cleansed and adjusted. Whatever else you may do with the bottle, above all things keep it clean, not only to outward appearances, but by actually scalding and soaking in soda solution up to the very time of its use.

Food for Infants. — It has been found that mother's milk, which of course is the best food for babies, is composed on the average of the following ingredients: water 87, fat, 4, casein 1, sugar 7, ash 1, and slightly alkaline in reaction.

Now, ordinary cow's milk has the following composition: water 87, fat 3.7, casein 2.9, sugar 4.9, ash .4; it is slightly acid.

We can therefore see that if we take cow's milk and dilute it with water sufficiently, we diminish the amount of casein to that of mother's milk, and by the addition of cream, milk, sugar and lime-water, we raise these constituents to the standard found in human milk. This mixture, known among medical men as the "Meigs' Cream Mixture," is the basis of all modern compounds for artificial feeding.

Milk, as ordinarily received from the milkman, swarms with bacteria and germ-life which, under favorable conditions, quickly changes the milk and renders it unfit for easy and proper digestion. Milk from the mother is devoid of these germs, or, as medical men say, it is sterile. This attribute then is in reality quite as important as the proper constituency of milk. The process of making cow's milk sterile is called *sterilization*, of which we will speak shortly.

Temperature of Milk.—Mother's milk is of the same heat as the body, or nearly so; hence common sense dictates that the artificial food must be of that degree of heat, or, about 98° Farenheit.

Quantity and Interval of Feedings.—The capacity of a baby's stomach and the length of time food remains in it are matters of experience. Herewith is appended a table covering the general rules of feeding infants and especially adapted to milk and cream mixture of which we will now speak.

GENERAL RULES FOR FEEDING.

AGE.	Interval. Hours.	Feedings in 24 Hours.	Amount at each Feeding. Ounces.	Amount in 24 Hours. Ounces.
1st week	2	10	1	10
1st to 6th week	2½	8	1½ to 2	12 to 16
6th week to 6th month . .	3	6	3 to 4	18 to 24
At 6 months	3	6	6	36
At 10 months	3	5	8	40

—Dr. F. M. Rotch, Keating's Cyc. Dis. Children.

Based on the average analysis of mother's milk, i. e., 7 parts sugar, 4 of fat, and 1 of albuminoids, we must take : cream 1½ ounces, milk 1 ounce, water 5 ounces, lime-water ½ ounce, sugar of milk 3 to 3½ drachms.

The milk-sugar is to be obtained at the druggist's. This gives an eight-ounce mixture, so that for a baby four weeks old (see table) we need to take about one-half or three-fourths more of this mixture; for a baby six months three times this amount, and so on. For a child newly born, after the first few days, when only a little should be given, only slightly more of these ingredients should be used than in above formula.

The prescriptions which could be used for the first week of nursing would be much changed at the time of weaning, so that one

formula is too arbitrary to be of general use. Therefore while the one given is useful at a certain period, it is best to have several formulæ to work upon in order that should one prove too strong or too weak another one may be tried. Therefore, after the first week if the child is not thriving on the mother's breast and it is necessary to feed it artificially we may take a mixture of 5 ounces of cream, 1 ounce of lime water, 14 ounces of plain water sterilized to which we add 8 teaspoonfuls of sugar of milk. About three or four table-spoonfuls should be fed every two hours. For a child two to six months old, we take 16 ounces of cream, 5 ounces of milk, 2 ounces of lime water and 18 ounces of sterilized water to which we add a teaspoonful of sugar of milk. For a child ten months old we take 16 ounces of cream, 15 ounces of milk, 2 ounces of lime water, seven ounces of ordinary water and a teaspoonful of milk sugar. The amount given at each feeding should be according to the table given. It will be noticed that the proportions of milk to water increase in favor of the milk as the age of the child increases, so that by weaning time the child is much better able to digest undiluted milk. Any formula may be modified in any of the proportions given to meet an individual case. The cream that is spoken of, means the top of a can of milk that has stood six or eight hours. It may be scooped off with a cup or removed by siphonage, the addition of lime water is always necessary as cow's milk is usually acid and the child's stomach is constructed to digest an alkaline food.

When the back teeth, or molars, have come through, then, for the first time, bread, rice, and soft-boiled egg may be added.

Oatmeal jelly may be prepared by boiling a quarter of a pound of oatmeal, in a quart of water, down to one pint. This mixture is then to be diluted with an equal quantity of boiled water and strained through a cloth. Should the oatmeal prove too laxative for the child, barley jelly may be made in the same way.

Sterilization of Milk. — We have seen how much more important than the kind of nursing-bottle that may be selected is the kind and quality of food put into that bottle. To complete our consideration of the best artificial food, we must know how to render the milk free from bacterial life; this process is called sterilization, and may be accomplished in a simple way as follows: into as many bottles, which have been previously scalded and cleansed, as there are to be feedings in the twenty-four hours, pour that quantity of the milk mixture which is to be given at a feeding; place these bottles, with absorbent cotton in the mouths, into a kettle filled with water up to the level of the milk in the bottles, and allow the water to rise to 170° Fahrenheit, when the kettle is removed to a warm part of the stove and covered for about half an hour. The bottles should then be kept in a cold place till used, when they are to be heated just sufficiently to correspond to the body heat. These bottles come ready made, also a rack in which to rest them in the kettle. They should be, in

reality, specially made bottles, and are to be obtained at any drug-store. They are ready for the baby's use after removing the cotton and attaching the nipple. One may, however, sterilize the entire feeding of the twenty-four hours, or for twelve hours, as thought best, in any clean, thin bottle or jar, and pour out the given amount required at each feeding; but there is some danger of spoiling the sterilization by so much handling. Should it be desirable to prepare milk to keep for a longer time, it will then be necessary to sterilize at a greater heat (212°), and to repeat the process two or three times. Such milk is supplied nowadays in the larger cities by companies who will express it daily to one's address.

With the appearance of greenish colored, foul smelling stools, we may assume that fermentation processes are taking place and very little can be accomplished in the way of relief until the trouble has been swept away. A sudden change of weather most likely to occur when a warm day suddenly changes to a cold one, milk that has not been properly sterilized or has been opened in places where it could absorb odors, in an ice chest or near vegetables, or again where it comes from cows more or less unhealthy, or kept in bad surroundings may cause this trouble even without the child having other sickness. Small doses of calomel best given in 1-10 grain doses every half hour until the bowels have moved two or three times or until 12 to 20 doses have been given. Following the movement of the bowels when the calomel is to be stopped we give some simple astringent like bismuth subnitrate in 5 grain doses every two hours to coat the bowels and soothe inflammation.

Weaning.—At the end of twelve months, the first set of teeth are generally so far cut that the child can manage most kinds of plain food; and it may now be taken from the breast. Should the teeth appear earlier, and the infant be healthy, it may be weaned even at the end of the tenth month. Never take the child from the breast in the midst of summer heat. A disordered state of the bowels, or cholera infantum, would be likely to be the result. The spring and the autumn are the proper periods for weaning.

If for some months it has been accustomed to other food besides the milk of the mother, it may be taken suddenly from the breast. It must not have any amount of solid food it may crave immediately after weaning. It should still be kept, for some time, upon a simple, bland, half-fluid aliment, taken in moderate quantities, and at proper intervals. At first, the food should be bread and milk, boiled rice and milk, soft-boiled eggs, oatmeal gruel, plain rice-pudding, preparations of arrowroot, tapioca and sago, simple meat-broths, mixed with crumbs of bread or grated crackers, or in which rice or barley has been well boiled. From this it may pass gradually to a more solid diet; though, until the age of puberty, the principal part of the diet should be milk, the farinaceous articles, and vegetables. Sugar has been thought to be injurious to children. It is not so. If taken moder-

ately, at meal-times, it is wholesome. Lately a new form of chocolate has come into use, called *Kraft-chocolate*, made in Germany. It is prepared with cocoa-butter and comes in small cakes, is easily digested, nourishing, and supplies sweets in a very acceptable and strengthening form.

Whatever be the food allowed to children, it should never be taken in excess; and to prevent this, they ought not to take their meals alone; for they have very keen appetites, and if permitted to do so, they will generally form habits of gluttony. Three or four light meals a day is enough.

Their drink should be *water* simply, — nothing else.

If parents would observe these rules, and enforce them strictly, they would confer blessings upon their children greater than riches. They would send them into the world with health and good constitutions, and would save them from untold misery and an early death. Such a course would evince more love for their children than those weak concessions which allow tea and coffee, and all sorts of food, in quantities to suit, which occasion early disorders of the stomach and bowels, and bring later derangements of the nervous system, with all its regrets and horrors.

Sleep of Children. — During the first period of its existence, an infant sleeps a large portion of the time. This is a wise provision of nature. It withdraws the young child, for a time, from those outward exciting agents, which would too much disturb the nervous system of so tender a being. Whenever a young infant is restless or wakeful much of the time, we may feel sure it has had too much food, or is in some way disturbed by it, or by tight clothes, or that some other cause is giving it uneasy sensations. Do not make the mistake of thinking the child is hungry because it cries.

Its sleep should be the promptings of nature, and should never, except in rare instances, be brought about by opiates. It is wrong and sinful for a mother or nurse to put an infant to sleep with an opiate, merely that she may gain time for pleasure, or even for other duties.

The Infant should be kept Warm while Sleeping. — During the first few weeks it should sleep with its mother, especially if the weather be cold. After that, it may be in a cradle or cot. The covering should be warm, but *light*, so as not to press heavily upon its tender limbs. If laid upon its back, the fluid of its mouth and throat may get into the windpipe, and obstruct the breathing, or produce coughing. It is better, therefore, to lay the infant upon its side, — taking care not to produce distortion of the spine or limbs by always laying it upon the same side.

Children should not be allowed to sleep either with the aged, or with sick persons. It is not healthful for them to breathe the exhalations from the bodies of such. For a somewhat similar reason, some

kinds of plants, and flowers generally, should be excluded from their sleeping-rooms. Their beds should be so placed as to turn their faces away both from the sunlight which comes in at the windows, and from the artificial light in the room.

They should be taught to retire early at night, and to rise immediately after waking in the morning. This habit will be worth much to them through life. Do not form the habit of rocking the child to sleep. After the meconium has passed, the bowels of an infant should be opened from two to four times in twenty-four hours. If the stools are less frequent than twice a day, or, if they are lumpy, some gentle cathartic is called for. From one-quarter to one-half teaspoonful of castoria, or a dessert-spoonful of mixture (24), answers a good purpose. During *childhood*, the bowels should be moved once or twice a day. When a cathartic is required, a table-spoonful of mixture (25), or a teaspoonful of (17), will be found excellent.

Exercise. — During the first few weeks of an infant's life it requires but little exercise; indeed its organization is not sufficiently settled and compacted to permit much without injury. A little gentle rubbing with the hand over the whole body is about all it needs or will bear. To dandle and toss it about, and especially to set it upright, is injurious and wrong. Its bones are all soft, and will not endure to be much twisted about, and its spine is not stiff enough to bear up the weight of its head.

After a few months, riding in a carriage, by a careful and trusty nurse, is both a healthful and pleasurable exercise for children.

Learning to Walk. — At the end of the ninth or tenth month, a child may begin to learn to walk. It is not safe to teach it this exercise much earlier than this, as the bones, being soft, may be bent by the weight of the body, and the limbs be permanently deformed.

As soon as the child has learned to walk alone, it should be allowed perfect freedom of exercise. Thenceforward, the open air is its proper place during the day; and such an unrestrained use of its limbs as its own instincts may dictate, is its proper calling. For five years after it has learned to walk, it should do little else than to use its limbs out of doors, as it pleases. The books and the school-room will be in season after that. First compact the body, then bring out the mind. The mind is of no use without the body, — the body must be developed first, or never.

Moral Treatment. — We charge upon nature many of the bad passions which we ourselves implant in children. The moral treatment of children is generally bad. We are apt to begin by either making them our masters or our slaves. Sometimes we do both, — allowing them to govern us for a time, and then, getting into a passion, or a mood for playing the tyrant, we turn upon, and govern them as if we were autocrats. We submit to their whims until we

grow irritable, and then, by way of retaliation, we compel them to submit to ours.

This is all wrong. Children should be *governed always*, but with an even, a gentle, and a loving hand. They should early be subjected to habits of self-control, and of regularity in eating and sleeping; and should be taught absolute and continued obedience. All this can be brought about only by firmness, self-control, and great gentleness on the part of the parents. If they would make a child cheerful and happy in its disposition, they must themselves be cheerful, and never let it see anger, passion, and fretfulness, marring their conduct. Nothing is more injurious to the health of a child than a peevish, complaining, and soured disposition; and these vices are seldom acquired, unless seen in the lives of parents.

How to Nurse Sick Children.

As the education of the young, whether religious, moral, or intellectual, is more important than that of adults, so is the care of their physical life of more importance. Death aims to "out-Herod Herod," and seeks the life of all infants, male and female, and in fact destroys one-half of all below the age of five years.

But few know how to train and take care of children. It is a still more rare gift to know how to nurse them when sick. No person can properly nurse sick children who is in feeble health, or has a fretful temper, or is low-spirited: for she can neither endure the fatigue, nor bear the trials, nor hear the prattle which such a responsibility would bring. Some will manage a well child very well, who are not fit to have the care of a sick one; for there is a great difference between a child when well, and the same child when sick. When well, and full of fun and frolic and life, laughing and jumping and shouting aloud for very joy at being alive, it is an easy thing for a person of even a morose temper to attend upon them. But when sickness comes, and the child's playfulness is all laid aside; when it becomes so fretful that nothing goes right with it; when it cries to be laid down, and then cries to be taken up; stretches out its hand for drink, and pushes away the cup when it is presented, — apparently made more angry by your attempts to serve it; — when these things are repeated day and night, until the nurse is weary and exhausted, and even a change of disease and amendment only brings a cross and fractious temper, it is only by possessing peculiar qualifications that the nurse can maintain an even and unruffled disposition.

While passing through such scenes, it is hard for the nurse to remember that sickness does not destroy the little loving heart, but only hides its affection for a short time.

Signs of Disease in Children. — It is important that the nurse of sick children should know what to observe, and the meaning of the signs of disease. A baby has only cries to express its sick feelings. To one person, these cries mean no more than that the baby has *some*

sort of illness. To another, with more experience and better powers of observation, they point to the head, or chest, or stomach as the disorder. A baby with the stomach-ache utters *long, loud, and passionate cries*, and *sheds tears plentifully*. Suddenly it stops for a moment, and then begins again, drawing up its legs to the stomach, and as the pain passes off, stretching them out again, and with many sobs, passing off into a gentle sleep.

If there be inflammation in the chest, it *neither cries loud, nor sheds tears*, but after every long breath or hacking cough, it *utters a short cry, which is cut off before it is half finished*, — apparently because crying is painful.

If the disease be in the head, the cries will be *sharp, piercing shrieks, with low moans and wails between*. Or, there will be quiet dozing, interrupted by startling pains.

When a child is taken ill, whatever the disease which is impending, there is always a change of some sort, which soon attracts attention. It either loses its appetite, or is fretful, or soon tired, or sleepy, or restless, or thirsty, or has a hot skin, or, rather, has a number of these symptoms. It vomits, or is purged or bound in its bowels. It loses its merry laugh and cheerful look; it no longer watches its mother's or its nurse's eye, as before, but clings to her more closely, and will not be out of her arms a moment. If lulled to sleep in her arms, it wakes immediately on being placed in its cot.

Such symptoms often continue a day or two before it can be determined what disease is impending. An intelligent nurse may do much towards solving the question. It is frequently proper at such times to place the child in a warm bath. When stripped for the bath, it should be carefully examined to see if there is any rash upon its body. If it be a rash from which it is about to suffer, the bath will help bring it out. The rash should be looked for at least every twelve hours, until the nature of the disease is determined.

The Appearance of the Different Rashes may be distinguished with a little care and experience. Measles has a number of dark-red spots, in many places running into each other, and is generally seen first about the face and on the forehead, near the roots of the hair, and is preceded by running at the eyes and nose, and all the signs of a severe cold. Scarlet fever does not show separate spots, but presents a general bright red color of the skin, much like a boiled lobster. At first there is more of it about the neck and chest than on the face, and it is preceded by a sore throat. Chicken-pox is attended by fever, but not so much running at the nose and eyes as in measles, nor is there so much cough. The spots, too, are smaller, and are not so much run together; and they come out more over the whole body. They appear a few hours earlier on the body than elsewhere; and in a day or two they are found to be enlarged, and turn into little bladders of water as big as the head of a shawl-pin. (See table of comparison of these diseases.)

And now a few Words as to what should be Done in the sick-room of a child. The room should be kept *cool*, and its temperature should be measured by a *thermometer*. This instrument, when hung away from the fire, should show a temperature of about 60°. That is about the right degree of warmth. Sick-rooms are generally kept too hot. The room should be *darkened*; not made totally dark, but its light shaded down by closing the outside blinds, or by dropping the curtains, so as to give a kind of twilight; and the cot should always be so placed as to turn the little one's face away from the light. The room should be kept *quiet*; and this requires attention in the whole house, as well as among the persons in the room. Those present should never whisper, but speak in low and gentle tones, — should not walk on tip-toe, but move about carefully. There is a *fussy quietness* which disturbs the sick far more than noise. The child must be spoken to, and roused from its slumbers, and turned from side to side, and raised for its food or medicine, with a soothing tenderness, and a delicacy which never forgets itself.

In applying leeches or cold to a child, judgment is needed to succeed well. The leeches should be put either behind the ear or on top of the head, so that the child cannot see them. Cold is best applied by means of a couple of ice-bags, half filled with powdered ice, and wrapped in two large napkins; one of them should be placed under the child's head, the corner of the napkin being pinned to the pillow-case to prevent its being disturbed, while the other is allowed to rest upon the head, with the corner of the napkin again pinned to the pillow, to take off the greater part of its weight. In this way the child will not be wetted, or irritated, as by the changing of wet cloths, nor will the cold applications get displaced by its movements.

A word should be said respecting the nursing of children in cases of lung-inflammation, — an affection from which they often suffer. The lungs are much like two large sponges, and the air enters them through the windpipe; and passing through smaller and yet smaller tubes, it comes at last into tiny cells, so small that they can only be seen by a magnifying glass. When the lungs are inflamed, some of the tubes become stopped up; and the very small cells are pressed on by the flow of more blood than natural to the part; and so the air enters less easily, and in smaller quantities, than it should. If now you let the child lie flat, it is not only less able to draw a deep breath, and fill the lungs, but the blood also flowing to the inflamed portion of the lung, returns less easily than if the child were propped up in bed. When a whitlow is on the finger, if the hand be hung down, the inflamed finger will become redder, and will beat and throb so as hardly to be endured, while, if the hand be raised, the pain will abate. The same increase of pain does not follow an accumulation of blood in an inflamed lung, because the lung is not as sensitive as the finger; but the consequences are very serious. The air-cells being more and more pressed upon, the admission of air is

more and more difficult, until, at length, a large part of the lungs is rendered useless, and the child dies.

In this disease, the temperature of the room needs attention. The air should not be quite so cool as in other diseases. From 60° to 65° is about right.

Of course crying will irritate inflamed lungs, and it is all important that a child sick with this disease should be soothed and quieted as much as possible. Every good nurse knows how to do this better than any rules can teach her.

Sometimes sickness and vomiting, from which a child may suffer, are increased by want of judgment in giving food and drink. When there is nausea, the stomach will bear only very small quantities of food at a time, while cold drinks are almost always borne much better than warm. When there is nausea, it is best, for an hour or two, not to attempt to give any food or drink. After the stomach has been thus completely rested, give a single teaspoonful of *cold* water. If this is not thrown up, it may be succeeded, in ten or fifteen minutes, by a second or a third. If this is borne, give a little water thickened with isinglass, or cold barley-water, or cold milk and water; and then, with the same precautions, and in very small quantities, beef tea, or chicken broth, or whatever else the doctor in attendance may direct. The smallness of quantity, the coldness of the articles, and the giving it without moving or disturbing the child, if possible, are the important points to be attended to.

It is of great consequence that children suffering from diarrhœa should have their skin kept very clean. The pores should be kept well open, so that the fluid matter which is passing off by the bowels, and through the mucous membrane or inner skin, may be diverted to the outer skin. In this disease, the skin of children is apt to become irritable, or even sore. In these cases, soap and water are quite apt to increase the soreness, while a little starch, made as for use upon clean clothes, though much thinner, will, if used in place of soap, very much soothe the inflamed skin.

A child much exhausted by diarrhœa, or other disease, should be moved or lifted out of its cot or cradle as little as possible. Suddenly moving it when very weak may cause fainting, or even convulsions. Let it be sponged and cleaned by merely turning it, with great gentleness, from side to side.

In such cases, too, the child should be supported with proper nourishment. When worn down by diarrhœa, its desire for food may be nearly lost. Though at one time it cried much, and seemed to suffer, it will, in this condition, grow quieter, and doze, and even sleep on for hours, appearing fretful only when roused. If, in such cases, the child be allowed to go without food because it does not seek it, or declines it when offered, it will sink into a deeper and deeper sleep, and finally into a stupor which will end in death. To give a little arrow-root, or broth, may now require trouble and perseverance; but

it must be done, for upon it depends the child's life. The effort to administer food must not be abandoned because once or twice, or several times unsuccessful, for the food which is refused one minute may be accepted five minutes after.

In the various rashes from which children suffer, there is a very general fear of washing the surface lest the rash be driven in. There is no ground for this fear, unless it be in measles; and even in this complaint there is no danger if lukewarm water be used. If only a small part of the body be sponged at a time, there is nothing to fear even from frequent washing; and the passing of a wet sponge frequently over the surface is a great comfort when the skin is burning with fever. The same remark applies to the changing of the linen. The same kind of objection, and with no better reason, is often urged against cold water in fevers, though it is most refreshing, and if taken in small quantities, and often, never does harm, but often much good.

The Warm Bath.—The best method of giving a child a warm bath is a matter of importance. There should be as little parade about it as possible. If the child sees the bath prepared, is taken out of bed, undressed and put into it smoking before its eyes, it may be much alarmed, and cry so passionately as to be really injured by it. The bath should be prepared out of its sight, and brought to the bedside with a blanket spread over it to hide the steam. The child should then be laid upon the blanket, and gently let down into the water, and then set to play with a couple of corks with feathers stuck in them.

Inflammation of the Mouth. — *Erythematic Stomatitis.*

THIS is a simple inflammation of the mucous membrane of the mouth, and is very common during infancy. It may be confined to the tongue, or spread over the whole mouth. It is sometimes very severe, going down into the gullet and stomach, and into the wind-pipe. It occasions redness and pain in the mouth and fretfulness of the infant, causing it to quit the nipple suddenly when nursing. A frequent result of this inflammation is the secretion and exudation upon the surface of a white, matter-like curd. It appears in small points and patches. This is the *thrush*, or what nurses call *children's sore mouth*. It is commonly confined to the period of suckling.

Treatment.—The first treatment to be tried in this trouble as well as the next two diseases to be described should be a saturated solution of boracic acid. This is practically a four per cent. solution and it may be made by putting a tablespoonful or so of the powder into a tumbler of water stirred thoroughly and let stand a little while, then pour the upper fluid proportion off, leaving the sediment. This fluid will be of four per cent. strength and may be diluted one-half for use in young

children. After washing your hands wrap a piece of soft linen about the little finger, and after immersing in the fluid gently swab out the mucous membrane of the mouth and cleanse out the upper and under side of the tongue. By following this treatment directly after each nursing the trouble will usually be cured and a recurrence will be prevented. A very good prescription is a teaspoonful of chlorate of potash dissolved in 2 ounces of distilled water. The dose for a child of one to two years would be 15 drops of this mixture diluted with a teaspoonful of water. Older children should have proportioned doses up to one teaspoonful.

Follicular Inflammation of the Mouth.—*Apthae*.

THIS disease attacks the little glands of the mouth, called follicles and appears about the time of cutting teeth. Small white specks, a little elevated, first show themselves on the lips, insides of the cheeks, and under side of the tongue, etc. The specks enlarge, a whitish, curdy matter flows out from their centre, and ulcers are formed, with elevated edges, surrounded by a red, inflamed circle. Sometimes, instead of curdy matter, a bloody exudation takes place, and dark-colored crusts are formed which are mistaken for mortification. In bad cases, there is great restlessness, with hot mouth, dry skin, thirst, and diarrhoea, with green stools, and sometimes salivation.

Treatment.—The milder forms of this disease are treated like simple inflammation of the mouth. If there is thirst, give several times a day, a spoonful of cold water, with a little gum arabic dissolved in it. If the child be weaned at this time, its food should be barley or rice-water, sweetened with white sugar. An occasional dose of magnesia, with or without a little rhubarb, will remove the acid which abounds in the bowels. After ulceration has taken place, borax (274) will do well. When watery discharges from the bowels and griping pains appear, preparation (28) should be used. If the strength be reduced, give (69).

Inflammation of the Gums.—*Gengivitis*.

DURING the cutting of teeth, the gums are apt to be inflamed, red or livid, swelled and painful. The child is languid, with a hot and dry skin, small and quick pulse, little appetite, much thirst, and a tongue covered with a thick, yellowish fur. When ulceration takes place, and is allowed to go on, the teeth become loose, black, and rotten, and often soft and pulpy; a flow of fetid spittle takes place, the breath of the child becomes offensive, and its countenance pale and sallow. The gums bleed under the least pressure, and a profuse diarrhoea fills up the list of ills.

Treatment.—In the first stages, mild washes to the gums, such as (227), will do well. Clear out the bowels at once with magnesia and rhubarb (26). After ulceration has taken place, use oak-bark (232),

or chloride of lime (227), or diluted hydrochloric acid (233). A daily tepid bath. If the strength be reduced, use an infusion of Peruvian bark, or quinine (69).

Gangrene of the Mouth. — Canker. — *Cancrum Oris*.

THIS disease attacks weakly children, of a lymphatic temperament, and having inflamed gums. It often follows intermittent, remittent, or bilious fever, and is also frequently connected with disease of the stomach and bowels.

Symptoms.—It is attended with languor, listlessness, indisposition to play or move about, thirst, loss of appetite, peevishness, and inability to sleep. The countenance is pale and sunken, and there is a peculiar puckering of the cheeks about the corners of the mouth. The breath is bad, the gums have the appearance of salivation, the teeth become loose and fall from their sockets, or, if they remain, they become covered with a thick coating of a dirty white or ash color. A few ash-colored water-pimples appear upon the gums, which enlarge, run together, and finally break,—presenting a black appearance of mortification. The gangrene, sooner or later, goes to the lips and cheeks.

Treatment.—When bowel complaints exist, they are to be treated with the usual remedies, such as (70) or (156). If there be active inflammation of the gums, at first, leeches may be applied, after which, the inflammation being subdued, a wash of oak-bark (232) will be in place, with quinine given internally (69) to ward off the mortification. As a wash, too, a strong solution of sulphate of copper (234) is excellent; so is white vitriol (235), and nitrate of silver (219), and creosote (236).

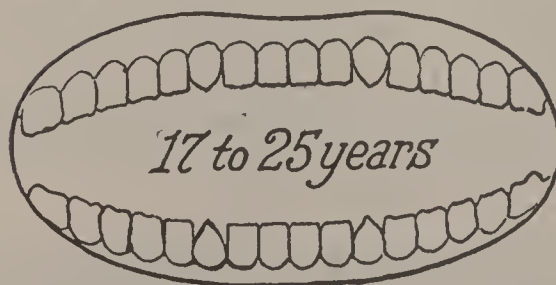
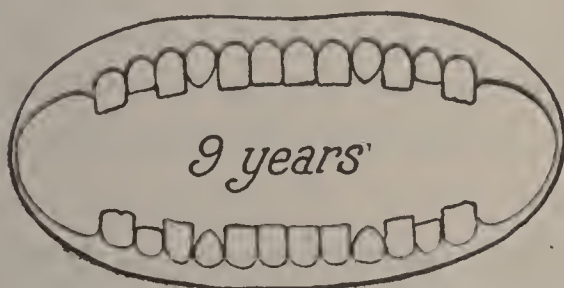
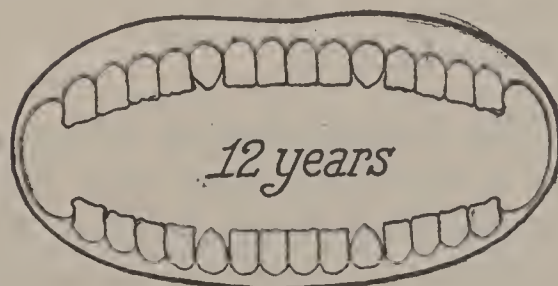
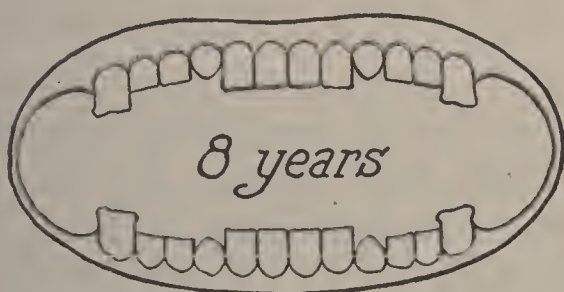
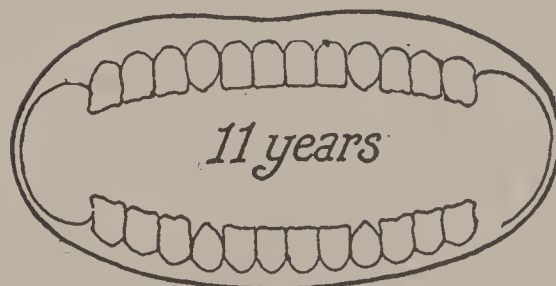
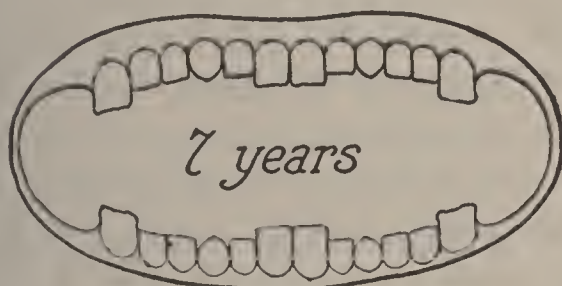
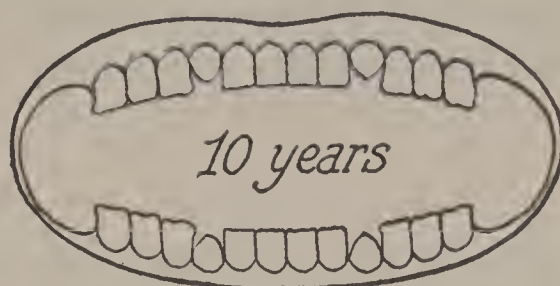
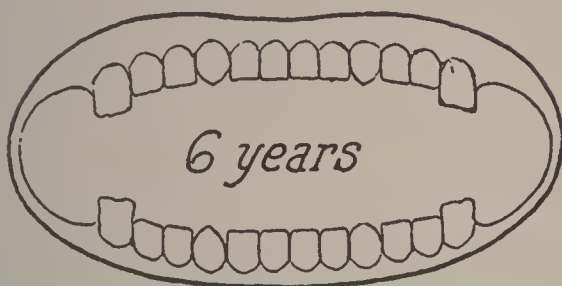
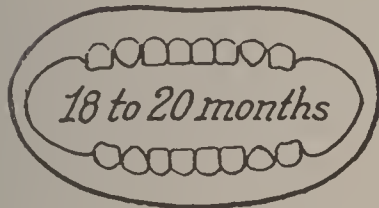
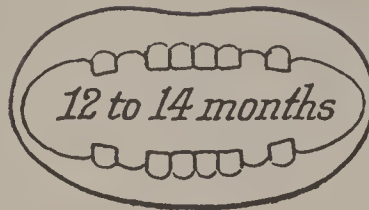
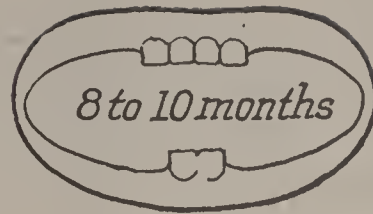
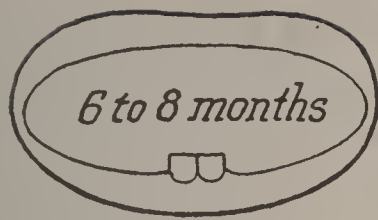
The diet should be beef-tea, plain beef or mutton broth, with rice, milk and rice, tapioca, sago, and the like.

Difficult Teeth-Cutting.

TEETH-CUTTING generally begins between the ages of five and seven months. It is indicated by redness, heat, and tenderness of the gums, an increase of saliva, and, occasionally, redness of the cheeks, watering of the eyes, thirst and fever, with fretfulness, disturbed sleep, and more frequent motions of the bowels, a little more fluid than usual, and sometimes of a greenish hue. As the tooth comes near the surface, the child holds its fingers in its mouth and presses the gums harder upon the nipple when nursing. Beside these milder symptoms, there are sometimes ulceration of the mouth, gangrene, extensive and long-continued diseases of the bowels, and even disorders of the brain, convulsions, and palsy.

Treatment. — Watch the gums, and the moment they are swollen

Growth of the Teeth.



by the teeth pushing them up, lance them at the elevated points, cutting entirely down to the advancing teeth, — so that no tough membrane shall cause pain by impeding their growth. These incisions often prevent fatal disease of the brain, and sometimes almost instantly relieve the most threatening symptoms. Before the teeth are far enough advanced for lancing, some soothing wash may be applied to the gums, or a leech or two to the angle of the jaw. For obstinate diarrhoea, with watery stools and griping, use prescription (157). If the child be drowsy and starts from sleep, and has heat and redness, with enlargement of the blood-vessels about the head, put three or four leeches behind the ears, and make cold applications to the head. At the same time, open the bowels with castor-oil (17). When there is difficulty of passing the water, give flax-seed tea; and if the pain be considerable, a sedative (351); one half teaspoonful in as much water, every hour till quiet.

Croup.

THIS is one of the scourges of childhood. Croup is an inflammation of the mucous membrane of the larynx and windpipe. It causes a peculiar fluid to flow out upon the surface of the membrane, which stiffens into a membrane, or skin-like substance and adheres to the inner surface of the windpipe, and sometimes extends through the whole of the bronchial tubes. This is *membranous* croup, — the worst and most fatal form of the disease. The ordinary form of croup consists in a congestion of the vocal chords with œdema and swelling, so that the voice is very husky and the cough very much like a hoarse, tight bark. This form is the result of cold, and is usually quickly amenable to treatment, although it is really quite frightful for parents to hear.

The Symptoms of croup are, difficulty of breathing, hoarseness, and a peculiarly loud and ringing cough, with fever. In the membranous and worst form of the disease, the breathing is not, at first, so laborious, and the symptoms generally not so violent and alarming as in the less fatal but more inflammatory type. This latter kind, though generally causing great alarm, like a highway robber, by the sudden fierceness with which they seize the throat, are yet much less fatal, and of course less to be feared, than the membranous form. The disease is pretty much confined to children between the ages of one and eight years.

Treatment. — The mild and ordinary form of croup, so frequently experienced by young children at night time, is usually much alleviated by small, oft-repeated doses either of the syrup or of the wine of ipecac, say five drops (for a child two years old) every fifteen minutes, till nausea, and even vomiting ensue, then much less often. The inhalation of steam, and of many of the medicated vapors, is an

excellent method of treatment for the older children. One teaspoonful of the compound tincture of benzoin in a bowl of boiling water inhaled through a tin funnel is a very simple thing and a very efficacious one; this is to be repeated every twenty minutes. In cases which do not yield to this treatment at once, the employment of turpeth mineral, in one-half to one-grain doses every half-hour till the child vomits, will clear up almost any severe case. The accompanying bronchitis which often follows is to be treated as laid down for that disease. Membranous croup is in reality diphtheria, and is to be so treated, the exudation being in the windpipe rather than in the throat. As soon as the case is diagnosed, the child is to be quarantined in a room by itself, and all the precautions taken against spreading the disease that would be employed in diphtheria proper. The newly-discovered antitoxin, with which the world has now been blessed for a year or two, has already saved hundreds and thousands of lives by its timely use. Nothing is simpler, nothing more efficacious, and nothing less deleterious. (See Diphtheria, page 485.)

The inhalation of the vapor of water-slacked lime softens the membrane and causes the little one to breathe with more ease. Place a bucket under a tent made with a sheet spread over the crib, into this bucket put a piece of lime the size of a turnip, and gradually add a little water. The fumes produced are not hard to bear, but an adult should also get under the tent, so that the little one will not be frightened. Keep the room warm, with plenty of moisture in the air. Liquid diet which is very concentrated, like beef-extracts, milk and egg, etc., with stimulants, should be given every two hours. Support the strength and heart by simple tonics like quinine, one-half grain in powdered sugar, or in a tiny pill, every two hours.

Spasm of the Glottis. — *Laryngismus Stridulus.*

THIS disease consists in a sudden shutting up of the glottis, or passage to the windpipe, which creates a feeling of strangulation, and a difficulty of breathing so great that the drawing in of the breath causes a peculiar crowing sound. There is no fever. The child, upon taking food or drink, or upon being irritated or teased, is taken suddenly with an impossibility of drawing in its breath. After struggling convulsively for a time, its head thrown back, its nostrils dilated, its mouth open, its eyes rolled up, its face pale, its legs and arms stiff, it begins to breathe with a shrill crowing sound. The disease is sometimes mistaken for croup, and for whooping-cough. It is strictly spasmodic in its nature.

Treatment. — During the paroxysm, set the child in an upright posture, with the head leaning forward, exposed to a full draft of cool, fresh air, and sprinkle cool water upon the face. Let nothing be tight about the neck. Slap the child slightly on the back, and apply friction along the spine. If these means do not succeed, place

it in a warm bath; while in the bath, sprinkle cold water on the face.

When the fit is over, examine the gums. If they are swollen, lance them down to the coming teeth. The bowels should be moved daily with some gentle physic, but not irritated by severe purging. If the stools are light-colored, use the following prescription: Podophyllin, one-half grain, alcohol, one ounce, elixir, one ounce, and take a teaspoonful in a teaspoonful of water, three times daily.

Whooping Cough.—*Pertussis*.

THIS is a contagious disease, peculiar to childhood, and occurring but once in the same individual. It is characterized by a convulsive, paroxysmal cough, which is attended by long-continued hissing, convulsive breathing, with rattling in the windpipe, which is succeeded by several short efforts to expel the breath, following each other in quick succession. The long, convulsive breathing, attended by the whooping sound, is immediately repeated; and these paroxysms continue until a quantity of thick, slimy, ropy mucous is thrown up, by expectoration or vomiting, when the breathing is again free. These paroxysms have all the appearance of impending suffocation, redness of the face, shedding of tears, sweating about the head and forehead, and such agitation of the whole body that the child lays hold of something for support. Blood sometimes starts from the nostrils, and the child involuntarily passes water or evacuates the bowels. In spring and autumn the disease most prevails. It is not generally dangerous.

Treatment.—First give an emetic,—say, two drams of wine of ipecac. Afterwards, give small doses of ipecac and sulphur (277). From six to fifteen grains of sulphur alone, three times a day, is an excellent remedy. A liniment of olive oil, oil of amber, etc. (193), applied to the spine, is useful. Belladonna (278) is a good remedy. Prussic acid (96) is strongly recommended by many, and is worthy of a trial. Lobelia (106) is a valuable remedy. Alum (279) is well recommended. Sulphuric ether, a little being spilled in the nurse's hand and held to the child's nose, generally shortens the paroxysm, and frequently abridges the disease. A solution of nitric acid in water, as strong as lemon-juice, and sweetened, is a very valuable remedy, breaking up the disease in two or three weeks. The child may drink it freely, a little further reduced with water. Inhalations of cresoline are the most useful to abridge and soften the paroxysms.

There are remedies by the legion that have from time to time been used against whooping cough, but few of them have survived their infancy. Among the more modern drugs bromoform still holds a prominent place. Given in one to six-drop doses in a tablespoonful of water, three times a day, and gradually increased to five and ten drops, respectively, the drug exerts a marked impression on the

duration and severity of the disease. Antipyrin, in five- to ten-grain doses, according to age of child, given three or four times daily, mitigates the paroxysm and shortens the disease. The burning of cresoline, a coal-tar product obtainable at all drug-stores, is a most valuable means of cutting short the disease. This liquid should be put in a tin box-cover and set over a lamp with very small blaze, — just sufficient, in fact, to evaporate the cresoline. A lamp for the purpose comes with the cresoline, but any ordinary lamp with serrated lamp-chimney may just as conveniently be used. The odor is strongly tarry. The vapor should be confined in the sleeping chamber at night, but may also be burned both night and day.

Looseness of the Bowels. — *Diarrhœa*.

INFANTS and children are more liable to diarrhœa than adults, and this is the reason for speaking of the disease here as well as elsewhere. It may be caused by inflammation of the stomach and bowels, by irritation produced by too much or improper food, by cold and damp weather, or by teething. The discharges from the bowels may be more or less thin, of a dirty white color, of a curdled appearance and acid smell, or they may be watery, yellow or green in color, and often mixed with blood. Sometimes they are mixed with portions of undigested food, are very acid, and when the looseness has been caused by unripe vegetables and fruit, in a state of fermentation, like yeast. At other times, especially while teething, they are a kind of thick mucus, like jelly.

If pressure on the bowels causes pain, the diarrhœa is the result of inflammation. When the disease has become chronic, the skin is dry, harsh, and discolored, the face wrinkled, looking yellowish, dirty, and old.

Treatment. — First, regulate the diet. This is very important. In the case of older children, take away every kind of solid food, as well as pastry, confectionery, sweetmeats, and fresh vegetables. Give plain boiled rice and milk, — sometimes boiled milk, — water gruel, crackers and milk, tapioca, etc. At the beginning of the attack, give some mild physic, as castor oil, or syrup of rhubarb. A warm bath at this period is excellent. If the discharges are very sour, dissolve a teaspoonful of bicarbonate of soda in half a tumbler of water, and give a teaspoonful every hour, or the same amount of lime-water, mixed with an equal quantity of new milk, or prepared chalk and ipecac (158), some slight astringent being used also (159).

After cleaning out the bowels in the way recommended above give a one-fourth teaspoonful for a child five years old of a mixture which may be obtained at the druggist containing 2 drachms of the subgallate of bismuth, 20 grains of salol in 2 ounces of compound chalk mixture.

The Summer Complaint of Infants. — *Cholera Infantum*.

THIS is confined to the North American continent. It occurs in large cities during the hot season. Its subjects are infants between the ages of four and twenty months, — occurring most frequently about the time of cutting the first teeth. It is one of the most fatal diseases of infants.

Symptoms. — It begins with a profuse diarrhœa, — the stools being green or yellow, or more often light colored, and very thin. The stomach soon becomes very irritable, — rejecting everything with violence. In some cases, vomiting and purging set in, — the discharges from the bowels being without color or smell. The infant rapidly loses flesh, and is soon reduced to great languor and prostration. The pulse in the beginning is quick, small, and often tense. The tongue is covered with a white, slimy mucus. The skin is dry and harsh. The head and belly are hot. The feet and hands are either of the natural temperature, or cold. There is great thirst, and towards evening, fever. The belly is often a little swollen, and tender to the touch. Occasionally there is delirium, as indicated by wild and bloodshot eyes, violent tossing of the head, and attempts to bite and scratch the nurse.

Treatment. — If possible, remove the child at once from the impure and heated air of the city to the cooler and purer air of the country. Or better, take it to the seashore or a short trip on the salt water. This will often give immediate relief. Be careful the child does not take cold. If this cannot be done, keep it in as large and dry a room as can be had, and take it often into the open air in clear weather. Confine the infant entirely to the breast, or, if weaned, let its food be tapioca, pure arrow-root, rice flour and milk, and put it daily in a warm or tepid bath, according as the skin is hot or cold. Give it gum-water, or rennet whey, with a little gum-arabic added to it.

These measures, if used early, will often cure the disease, without medicine. If the vomiting be obstinate, camphor and sulphuric ether (280) will generally give relief. The prescription for diarrhœa will be valuable in this disease and in addition some stimulant like whiskey in doses of 5 drops to 30 drops according to age, had better be given every 3 or 4 hours. When the vomiting is stopped, the most prompt remedy for the disordered bowels is the compound syrup of rhubarb and potassa. When the disease has become chronic, treat it the same as children's diarrhœa. But if the discharges are sour, offensive and dark colored, pulverized charcoal (42), with tartrate of iron (71), will be suitable remedies. Rhubarb, leptandrin, etc. (28), will often answer a good purpose.

Colic.

INFANTS are very much subject to colic, from over-feeding and

consequent acidity of the stomach, from giving them solid food at too tender an age, and from some improper thing eaten or drunk by the mother or nurse. They often suffer intensely from these pains, tossing their legs up and down, and screaming vehemently. When it arises from costiveness, the bowels are often hard and swollen.

Treatment. — When it arises from costiveness, give an injection of a tablespoonful of castor-oil, and a half-ounce of warm infusion of peppermint or spearmint. At the same time, administer internally an infusion of one of the same herbs, with a small portion of bicarbonate of soda dissolved in it, and sweetened with loaf sugar. Or, if the bowels need to be acted upon, the syrup of rhubarb, or the sweet tincture of rhubarb, with a little soda in it, will do well. Paragoric generally brings relief, but should not be used, if simple carminatives will answer the purpose. Children are often relieved by covering them with a hot flannel, laying them upon the belly on the knee, and trotting them, at the same time tapping them gently upon the back. This should be done cautiously; for if unsuccessful, it might increase the suffering; and the infant has no language but screams to tell its distress. Five drops of aromatic spirits of ammonia, with same amount of spirits of lavender, in warm water, relieve, if often repeated, most cases.

Falling of the Bowel. — *Prolapsis Ani.*

IN cases of long-continued looseness, the lower bowel of children sometimes gets so weakened that it drops down, and projects through the fundament. Occasionally, only the mucous membrane which lines it comes down, in the shape of a small tumor, causing a sense of bearing down and smarting. These fallings-down occur when the child goes to stool. Whether it be the bowel or the lining membrane which has come down, if it be allowed to remain long down, inflammation will take place, and to return it will then be very difficult.

Treatment. — Place the child upon his back, and, having smeared the thumbs, or forefingers, with lard or sweet oil, press them gently upon the tumor in such direction as shall tend to return it within the body. If this does not succeed, push the forefinger into the gut, so as to relax the circular muscle which contracts upon and holds it. If the falling is caused by straining at stool, made necessary by costiveness, some ripe fruit stewed in molasses, or rye hasty-pudding and molasses, should be given to the child daily, and it should be caused to empty the bowels while standing up. To strengthen the bowel, few things are better than cold water, applied to the fundament several times a day. An astringent wash of oak-bark (232) is also valuable. Should the bowel become so much relaxed that these means fail, a tight bandage must be applied to support the fundament. Be careful that some ignorant pretender does not — as has happened — apply the ligature or the knife, and cut off the tumor,

instead of returning it into the body. Feed upon the simplest of liquid food.

Gastric Fever of Infancy.

THE inflammatory affections of the bowels, which happen after teeth-cutting, are frequently accompanied by remittent fever, — the fever showing itself very distinctly towards evening, and subsiding, or nearly disappearing, in the morning. It is a sympathetic fever, and is generally the result of a reaction produced by inflammation of the stomach, or ileum, or colon. The attack is sometimes sudden, though generally gradual.

Symptoms. — For several days, the child will be languid and fretful, with loss of appetite, increased thirst, and some heat of skin. Towards night these symptoms are more intense; the skin is more hot, the thirst and restlessness are greater, the pulse more rapid. In the morning, the skin is more moist and cool, and the child falls into a short, disturbed sleep. Early in the attack, the bowels are constipated, — though there is sometimes diarrhoea, or a frequent desire to go to stool without much being passed. The evacuations are always unnatural and very offensive. They are dark-colored, or clay-like, or of the consistency of tar, — sometimes mixed with mucus, and occasionally with blood. There is tenderness of the belly, and pressure upon it causes pain. It is also hot to the touch, while the feet are cold. The face is flushed, and the breath has a decidedly sickly smell. The stomach is irritable, and vomiting is frequent. The tongue, after a time, becomes coated, dry, and pointed.

In the chronic form of the disease, there is, frequently, diarrhoea, the passages being unhealthy and fetid; the tongue is covered with a brownish-yellow mucus, the gums with sores; the lips are parched and cracked; the urine is scanty and high-colored, with a white sediment; the skin, dry, harsh, and dirty-looking; the countenance contracted and wrinkled; and there is, frequently, a dry, hacking cough.

Treatment. — Regulate the diet. This is important. In recent and acute cases, withhold all food, except some cold mucilaginous fluid to drink, as rice-water, gum-water, infusion of slippery-elm bark, or milk diluted with barley-water. Give a warm or tepid bath daily. Purgatives should be used *sparingly*. The bowels, when costive, had better, generally, be opened by injections of tepid water, or thin gruel. If any laxative be used, let it be the compound rhubarb powder, or either of the following (28), (281). When the discharges have become healthy, and the tongue clean and moist, some light bitter, as the infusion of Peruvian bark, or calumba, in combination with diluted sulphuric or hydrochloric acid, may be given. These, carefully given, with the daily tepid bath, and exercise in the open air will soon restore the strength.

Mesenteric Disease.

THIS attacks scrofulous children between the ages of three and ten years. Its symptoms are a prominent belly and loss of flesh, — particularly upon the arms and legs. To be able to feel the enlarged and hardened glands through the walls of the belly is the surest sign of this disease. When the complaint is long-continued, the child loses all its flesh, and dies in almost a complete skeleton state.

Treatment. — If there is inflammation or other disorder in the stomach or bowels, attend to this first. Then put the patient on a generous diet, such as meat-broths, etc. Give bicarbonate of potassa, dissolved in the infusion of calumba or quassia, and when there is costiveness, add rhubarb to the preparation. For the enlargement of the glands, apply, externally, an ointment (184) of the iodide of lead, or of the iodide of potassium (185). Give an ioduretted bath, daily, which is formed by adding one grain of iodine and two grains of iodide of potassium to each gallon of warm water.

The syrup of iodide of iron, three to five drops, should be given internally three times a day, in a little water, or the iodide of potassium, five grains, and compound infusion of gentian one-half teaspoonful. Daily sponging the body in salt and water, and exercise in the open air, are important.

Rickets.

THIS is also a disease of scrofulous children. By some defective process of nutrition in such children, there does not enter into the bones enough phosphate of lime to harden them, and the weight of the body, or the pulling of the muscles, or the pressure of the clothing, bends and distorts them in all manner of ways. The heads of the thigh-bones are pushed nearer together, making the lower belly narrow; the backbone is so curved as to lessen the height; the shoulder-blades stand up like wings when flying is contemplated; and the shoulders are so lifted up that the head seems only a little higher than the elevations on each side.

Treatment. — A good, generous, wholesome diet, properly regulated; out-door exercise; the tepid or cold salt-water sponge-bath, with friction, and but little medicine. The hypophosphite of lime, in two-grain doses, given in a little sweetened water, three times a day, or the syrup of the hypophosphites, in half-teaspoonful doses, three times a day, may be given with advantage. The pyrophosphate of iron, combined with the lime, makes a good tonic for scrofulous children.

The Blue Disease. — *Cyanosis.*

THIS disease is known by a blue, purple, or leaden tinge over the

whole body. The warmth of the body is reduced, there is difficult breathing, which is increased by quick motion or by crying. The disease is generally fatal. The blueness is occasioned either by the passage between the right and left side of the heart remaining open after birth, so as to let the blue, venous blood run through and mix with the red arterial blood, thus making the whole blue, or by the obstruction of the pulmonary artery, which withholds the blood from the lungs, and does not allow it to be arterialized and reddened. This latter opinion is the more general one now.

Treatment.—Keep the patient, as much as possible, in a state of rest, so that the circulation may not be hurried. Allow pure, fresh air, easily-digested food, and protect the body from cold and dampness. Hold the infant near the fire, and apply gentle friction over the head and body with a warm, soft cloth.

Fits.

MOST persons have seen a baby in fits; and it is a sad sight,—its little face all distorted and livid, its eyes rolling and squinting frightfully; its hands clenched, arms bent, legs drawn up, body arched backward, and limbs twitching violently, — itself insensible and unable to see or swallow or move. After a time, the fit ceases, sometimes by degrees, at other times suddenly, the child fetching a deep sigh, and then lying quiet and pale, as if it had fainted. From this state it passes into a sleep, and, on waking, some hours after, seems quite well.

Fits may attack a child which is apparently well, occurring daily, or even several times a day, and it may linger on for weeks. A child may have fits from a great variety of causes; they therefore, have a different meaning in different cases. But they *always* show that the brain has in some way been disturbed.

Treatment.—As fits are not a disease in themselves, but only a *symptom* of some disease, the treatment must have reference to the cause. Sometimes, while the fit lasts, it is wise to do nothing. But, if a fit come suddenly, in the case of a child previously healthy, it is generally safe to place it in a hot bath, and at the same time to dash cold water on its face, or to pour cold water on its head, or hold on it a large sponge dipped in cold water. The hot bath will draw the blood to the skin, and away from the overloaded brain. It will quiet the disturbance of the system, and if scarlet-fever or measles are about to appear, it will bring them out.

DISEASES of the GENERAL SYSTEM

AND

MISCELLANEOUS DISEASES

DISEASES OF THE GENERAL SYSTEM

AND MISCELLANEOUS DISEASES.

HAVING now treated of those disorders which affect the skin, the brain and nerves, the throat, the lungs and their appendages, the heart and its covering, the abdominal cavity and its lining membrane, the sexual organs, and those complaints peculiar to females and children, it remains to speak of those others—fewer in number—which are not specially developed in any particular part, but disturb the whole system.

Blood.

Composition of the Blood.—The weight of the blood of the body being 1-13 of the total weight, its examination must necessarily be of considerable importance in the study of disease, and as the examination of the blood in a scientific way is the result of the later year's investigation a short description of the methods employed is here inserted. Though some finer sub-divisions may be made, it is sufficient for our purposes to consider the two kinds of corpuscles which constitute the solid portion and the fibrin and plasma which make up the fluid portion of the blood. The corpuscles are divided into red and white corpuscles, the red being in much greater number, give the color to the blood, their proportion being five million in one cubic millimetre of blood, a c. m. being the standard of measure and is equal to a very small drop. The white corpuscles in healthy blood number about 5,000 to a c. m. Roughly speaking, the human body contains about five to seven quarts of blood in the vessels and the tissues. On making an examination of the red blood corpuscles they are found to vary in disease from one million or even less, to the normal number or slightly in excess of five million. This diminution is found in the so-called anæmias. There are simple and pernicious anæmia and a third blood disease is chlorosis or yellow sickness, in which the corpuscles may not be greatly diminished in number but the coloring matter has disappeared. This coloring matter which is known as hæmoglobin is determined by extracting a small drop of blood from the body, diluting with a mild acid which destroys corpuscles and the resulting shade of color is compared with coloring plates of standard strength. The white corpuscles are divided into three or four important groups, of which the leukocytes are about sixty per cent.

Anæmia.

Causes.—Simple anæmia may occur from a variety of causes and is a very common disease after hemorrhage from the body, as the result of injury, losing an ear, arm or leg, or even wounds that allow the escape of considerable blood before the flow of blood is stopped will result in an anæmic condition of the patient. A serious disturbance of nutrition either from starvation or because the food that is taken into the body does not nourish. The occupation of the patient which may be unhealthy such as working in paint shops or sewers or chemical works or exposure to disease such as malaria.

Symptoms.—Headache, dizziness, ringing in the ear with blurred vision, liability of palpitation, especially under nervous disturbances, general sickness of the body with backache, diminished or entire lack of appetite, gas in the stomach, pain after eating, disturbances of the bowels, usually constipation, pallor of the lips, cheeks, fingernails, and loss of flesh and strength.

Treatment.—If the cause can be found the treatment will be rewarded by a great improvement with its removal and the use of proper blood tonics. Iron and arsenic are the remedies employed to compensate for the loss of coloring matter.

Unnatural articles of diet, if used in excess, often cause a condition of the stomach which will result, if not checked, in chlorosis or green sickness.

Chlorosis.

Symptoms.—The symptoms are practically those of the other anæmias. Heart trouble, such as palpitation, irregular beat of the heart, ringing in the ears are possibly more common than in simple anæmia and the color changes in appearance to a greenish yellow; the patient may seem more stout owing to the swelling of the legs; enclosing a vein when the disease has lasted some time.

Treatment.—If the disease has not been present over too long a time the treatment recommended for simple anæmia will usually be sufficient to obtain a cure. Great care must be given to see that the person has an abundance of easily digested and nourishing food, that they have plenty of air, large amount of rest, and on no account must exercise be carried to the point of fatigue. The preparations of cod liver oil in emulsion if not offensive to the person, and all the fat that can be taken in the form of butter, cream, and milk should be given to those who are thin. Strychnine in 1-60 grain dose three times a day after meals, quinine in moderate doses of one grain after meals and the care of the person, if a young girl, at the monthly period, to prevent cold being taken will all be of value.

Pernicious Anæmia.

PERNICIOUS anæmia is the name given to the third and fatal variety of blood diseases, because no cure has yet been found to limit its onward march. The symptoms are similar to those described under simple anæmia and chlorosis, but no cause can usually be found for them and no cure likewise. Happily the disease is not common and is exceedingly rare in childhood.

Leucocytosis.

THIS is a name given to a condition of the blood where the white corpuscles are increased in amount. In certain blood diseases, of which leukæmia is the best example, the increase is enormous at times, even reaching to 80,000 and 100,000 corpuscles in the same amount of blood that should have only five to six thousand.

The symptoms of this disease are very similar to the anæmias and the diagnosis of the disease could only be made out by a scientific examination of the blood. It is accompanied by swelling of the glands, but as this also occurs in other diseases, their value is not of great importance, but a small increase of the white corpuscles is found in such a great number of more common disease that an examination of the blood is made as a routine measure. In many cases, for instance, in appendicitis the white corpuscles increase to fifteen to twenty thousand per cubic millimeter; in pneumonia they also increase sometimes to forty per cubic millimeter.

In other more common diseases as tonsilitis or sore throat, crysipelas, in small pox, inflammatory diseases such as felon, boils, bone diseases and lung troubles a greater or less increase is always found. In other diseases absence of an increase often enables the right diagnosis to be made out, for in typhoid fever which might in the early stages be mistaken for appendicitis there would be no increase in the formation of the disease but it would probably be marked in the latter stages. In malaria there is no increase but an examination of the individual cells of the blood under a microscope of fair power would discover the organism of malaria which is the cause of the disease.

Bacteriology.

IT is now well understood that every specific disease, every communicable disease is due to the introduction into the body of a specific cause of that disease which is called a germ. For example, one variety, a microscopical form of animal life the so-called plasmodium of Laveran, the discoverer, is the cause of malaria. An example of another variety is one of vegetable life in its lower form and the germ of the disease the bacillus of tuberculosis. During the life processes of these germs a poison is formed called a toxin which has a marked influence in the course which the disease runs and in many

instances it is the toxin manufactured rather than the primary onset of the disease which makes the trouble greater or less. The membrane of diphtheria in many instances is not great enough to cause the severe results obtained in this disease and persons die from an attack with relatively little membrane present in the throat. This is the result of the toxin, or poison generated by the germ, and during its circulation through the body causes the fatal result by several paths, one being the paralysis of the nerves so that swallowing is impossible or the heart is not controlled by the nerves that usually act upon it with a control similar to a safety valve. The toxin of tuberculosis is tuberculin. Pneumonia is due to the pneumococcus.

Typhoid fever is due to the bacillus of Eberth, the discoverer. The disease of plague is due to the bacillus of Yersin discovered in 1894. Even now, many diseases, some of the oldest have escaped giving up the secret of their communicability to investigators. It seems strange too, for many of them have been accepted as contagious from earliest times. Take leprosy as an example of a disease known since the world began and yet while we are sure it is due to a specific germ, yet the identical one has never been isolated.

It is necessary to understand methods of prevention of disease as well as the causes and the treatment of them. Only the ignorant, or worse still, those unwilling to believe facts can refuse to accept the record compiled each year of the great decrease in the mortality rate of disease. This it is our duty to prevent transmission of, and that it is due to this prevention in many cases, may well be verified by further reports. For example, the death rate of typhoid is not much diminished in general practice from that of ten or twenty years ago but the per cent. of cases reported annually is much diminished. Of course by newer treatment and quicker methods of diagnosis the comfort of the patient is increased and complications averted, and in that way the patient is carried through the illness with less loss of strength, but it is much better not to have been sick, and since we now understand about the transmission of disease through drinking water, milk, and from foul matter, disease is prevented or stopped after our investigation determines its source. Malaria was formerly very prevalent in Michigan but in ten years the percentage of cases is less than one-fourth. This benefit was due to better draining of swamps, marshes, and stagnant pools, employment of mosquito nettings, and improvement of drinking water service.

Yellow fever is transmitted by the mosquito in a manner identical with malaria.

There has been a great amount of labor expended by our government as well as the medical profession determining how far the cause of malaria is due to infection of mosquitoes. By injecting the organism of malaria in the saliva of the mosquito after a bite of a person by a mosquito, it has been possible to cause that patient to have a true attack of chills and fever, also germs have been

found in the deposit of eggs by a mosquito upon the surface of pools of stagnant water, as shallow wells, ponds without an outlet, etc. The germs are liberated and drinkers of such water acquire the disease.

An example of an entirely different nature in regard to action, but similar in result, is a disease best known of all from the standpoint of its fearful results, and that is tuberculosis or consumption, sometimes spoken of as phthisis.

Let me quote the statistics of a city like Brooklyn, N. Y. Her population in 1891 was 910,000 and the deaths from consumption was 2,117. Ten years later, in 1901, the population was 1,209,064, a gain of 300,000, yet the deaths from consumption was 2,474, or a gain of 350 deaths against 300,000 living. Boston had a death rate in 1853 of 48 people in each 10,000 inhabitants; last year only 23 in 10,000 died. Now this disease is spread mostly through atmospheric dust which is also true of most of the communicable diseases as diphtheria, pneumonia, influenza, scarlet fever, measles, whooping cough and smallpox, and not only are they contracted through the nose and throat, but are most often *spread* from the nose and throat. It must be explained that the germs of many diseases which are prevalent in the air are often distributed upon mucous membranes of persons not ill with the disease. The more numerous the germs the greater the danger that they will land upon some abrasion of the membrane, or the vitality of the person will be lowered to a degree of so-called susceptibility, which is the term used for the condition when a person is especially liable to contract that disease.

Expectoration is, of course, the great carrier of germs, but coughing, sneezing and sometimes in speaking, little drops of saliva or a fine, moist spray are thrown out which contain germs.

Plague is the disease where the infection by this manner causes the glands of the body to be swollen sometimes to a very large size, and until the antidote was discovered there was no cure known after a person had once become afflicted by this disease.

Another method of transference is by rats, either by biting or from fleas which have infested the rats, also flies, conveying by means of their feet germs from sputa, excreta, sores, etc. Probably typhoid has been transferred in this way many times. Tuberculosis of the bowels results from swallowing of saliva or sputum of a patient whose lungs are already infected or from milk or water. Should the milk or water have been boiled, this danger would have been done away with.

Having considered at some length how bacteria obtain an entrance into the body our common sense shows us the way to a prevention of the disease in many of the cases. Stings of mosquito and bites of animals can be guarded against in many instances and when contagious disease is about us we may with more safety keep people from that ; but we have got to breathe and our object must be to make the air as pure as possible either by cleansing the air or by

ventilation, changing the contaminated air for pure air, which is the far better way.

And the method of cure as well as prevention is instanced by our efforts in paying attention to the person of the patient as well as the disease. As good soil is necessary for the growth of germs, so we make the soil as poor as possible by building up the patient and assist the tissues to fight the disease as well as to destroy the organisms themselves. So tonics, and general tissue builders, with a few symptomatic remedies to control cough, produce sleep, etc., enable us to obtain the trinity of pure air, good food, necessary rest.

Now a few words on the counteraction of the poisons or toxins by antitoxin either by nature or by man. The help we hoped to obtain when it was thought an antitoxin of consumption had been discovered has not been realized, for it has proved to be more or less of a poison and its results have proved of little value except as a method of diagnosing the disease.

The antitoxine of diphtheria, of tetanus which is lockjaw, that of bubonic plague, and that of septicæmia or blood poisoning have all been proved of great service.

The word antitoxin explains itself, meaning *against poisons*. When the germs obtain a foothold in the system they occur both as the local manifestation, such as the membrane in diphtheria, and the destruction of the lung in tuberculosis and the general manifestation such as the poison I have described. Nature herself attempts to counteract this poison by an antitoxin of her own, but in many cases the amount of antitoxin manufactured is in too great a quantity and the time limited too short for nature to do satisfactory work before the patient would be dead.

So we reinforce nature with antitoxin manufactured by man. With antitoxin of diphtheria as an example I will explain briefly how it is accomplished. The primary object is to inject toxin in quantity sufficient to cause nature to manufacture her own yet by gauging the quantity and increasing the amount gradually until at last a dose can be injected which would have caused death if given in the first place. If no reaction of temperature and no sickness occurs after these large doses, then the animal is said to be immune and the serum of the blood drawn from such an animal is the antitoxin we use.

Malaria being caused by a form of animal life does not require an antitoxin as quinine has been found to be a sufficient drug to cause the destruction of the cause.

Of course smallpox is caused by a specific germ and yet no specific treatment is at present known. Vaccination as you know is a preventive and not a cure. Immunization has been known since 1798 when the first published reports from Jenner to whom we owe the discovery, appeared.

He had noticed that the dairy maids were practically free from smallpox. Then sores were noticed on their fingers which resembled

the sores on the cows. It has not even yet been settled that cow pox is or is not similar to smallpox but with its virulence modified. As a matter of fact smallpox has been given to a cow, but the further fact remains that cow pox does prevent in the human system the disease of smallpox. Formerly vaccination took place through human beings after originally being taken from the cow, but it was discovered that the protective power diminished by repeated transmissions through the human system so that virus obtained from the cow is now used almost exclusively. Formerly the death rate of persons exposed was 50 per cent. of those who took the disease, and about that rate remains today but it will be shown how much less the danger is when vaccination is enforced.

Notwithstanding the fact that it has been accepted by some since 1798 that an immunity has been offered from the disease, yet even today many of the, if I may use the terms, ugliest opponents are intelligent medical men.

Germany made the first laws and in fact she stands alone in enforcing vaccination. In 1871 a smallpox epidemic broke out, and out of a population of 50,000,000 she had 143,000 deaths. In 1874 she made her famous laws of compulsory vaccination and last year with a much increased population she had 100 deaths and these occurred on the towns of the frontier. Another instance was the Franco-German war when Germany with her army vaccinated, lost only 278 by death from smallpox, while France *without* any vaccination laws lost 23,000 men. In those whom the attack was from one to five years old one might contract the disease with chances against it, and if contracted, only in a light form. If unvaccinated and you get the disease, you stand just an even chance of recovery or death.

Fever.

FEVER is a disease which affects the system generally, and is characterized by more or less excitement of the circulation, increased heat, diminished strength, and, oftentimes, unnatural thirst. The degree of excitement is measured by the state of the pulse. Of this state, there are two characteristic indications: namely, *frequency* and *hardness*. A pulse is *frequent* when its rapidity exceeds that of health; it is *hard* when its stroke resists the pressure of the finger with unusual force.

In health, the pulse of an adult beats from sixty to eighty times in a minute; that of children is more frequent. The pulsations of the heart of the unborn infant, as heard through the body of the mother, are one hundred and fifty in a minute. After birth, the pulse varies from one hundred and forty down to the standard of adult age. To appreciate *hardness* of pulse, experience is absolutely necessary.

The great activity of the circulation, in fever, is intimately connected with the heat and thirst, and tends directly to waste the energies and consume the strength of the patient. The *heat* of fever

lessens or dries up the secretions, or different fluids of the body, which, in a state of health, are separated from the blood for various purposes. This is the cause of the dry skin, scanty urine, etc.

A *crisis* of fever is that period in its *course* when unfavorable symptoms give place to those of returning health.

A *course of fever*, or, in common language, a *run of fever*, is distinguished by a great variety of symptoms, which will be more particularly spoken of in the pages which follow.

Typhoid Fever.

OF the different kinds of fever, this is one of the most common and widely prevalent. The name *typhoid* is from two Greek words which mean *like typhus*, or *similar to typhus*. The word *typhus*, from a Greek word signifying *stupor*, means *stupid, dull* or *low*; and, when applied to a fever, implies that is *low*, or characterized by great *nervous depression*.

Typhus and typhoid fevers, if not identical, are so similar in history and treatment as to make unnecessary their consideration under separate heads. The following is one of the differences claimed to exist between the two: namely, in *typhus* fever, the belly is flat; there is no marked disease of the bowels, and generally no diarrhœa until the second or third week. In *typhoid* fever, on the contrary, some small glands, called *Peyer's glands*, situated in the lower part of the small intestines, are always inflamed, and sometimes ulcerated; and consequently, among the symptoms most frequently noticed, are diarrhœa, and drum-like swelling of the belly, called *tympanites*.

Symptoms. — The disease often has precursory symptoms. For several days before its actual beginning, the patient droops. He may attend to his various duties, but does not seem well; he is low-spirited and languid; is indisposed to any exertion of body or mind; has pains in the head, back, and extremities; loses his appetite; and although dull and perhaps drowsy in the daytime, his sleep is interrupted and unrefreshing at night. The immediate harbinger of the fever is a *chill*, often so marked as to cause violent shivering.

The history of the first week shows increased heat of the surface · frequent pulse ranging from eighty to one hundred and twenty, furred tongue; restlessness and sleeplessness; headache and pain in the back; sometimes diarrhœa and swelling of the belly; and sometimes nausea and vomiting.

The second week is frequently distinguished by an eruption of small, rose-colored spots upon the belly, and by a crop of little watery pimples upon the neck and chest, having the appearance of minute drops of sweat standing on the skin, and hence called *sudamina*, or *sweat-drops*; the tongue is dry and black, or red and sore, the teeth are foul; there may be delirium and dullness of hearing; and the

symptoms generally are more serious than during the first week. Occasionally, at this period, the bowels are perforated or eaten through by ulceration, and the patient suddenly sinks.

If the disease proceeds unfavorably into the third week, there is low muttering and delirium; great exhaustion; sliding down of the patient towards the foot of the bed; twitching of the muscles; bleeding from the bowels; and red or purple spots upon the skin.

If, on the other hand, recovery takes place, the countenance brightens; the pulse moderates; the tongue cleans, and the discharges assume the appearance they have in health.

Prevention of Typhoid.

It is a duty that we owe to friends as well as ourselves to use all possible protection that the disease will not be spread, as the cause of the disease has been found in every case of death. It is necessary that we destroy all germs without the body and those possible for us within the body, which may be sources of contagion. While heat would probably be the best and easiest method used and the temperature of 160 degrees Fahrenheit, of course this method would be impractical. The discharges from the bowels are in 90 per cent. or more of the cases the danger carriers, and when the germs dry and get blown about in the air, their danger of mischief is increasing. Should discharges be allowed to contaminate drinking water the danger is almost unlimited, as in the linen of typhoid patients and the hands of those that care for them. The following illustrates the desirability of leaving nothing undone when caring for the discharges from a typhoid patient. The town of Plymouth in Pennsylvania had a population a few years ago of 80,000 people. During January, and February of that year a case of typhoid ran its course and the discharges, without any attempt at disinfection, were carried out and thrown upon the snow at some distance from the house but on a slope inclining toward a mountain brook, which later became a part of the water supply of the town. After the thaw in March the brook was allowed to empty into the reservoir, and fifteen days later an epidemic of typhoid began which ended with a report of 1,200 out of the population of 80,000 becoming sick with the disease and the death of a great many of them. Water boiled and then cooled is much safer than trusting to the many patent filters on the market, and milk, if suspected, should be treated likewise, though a pure supply should be obtained.

Disinfection.—Carbolic acid after prolonged action is probably sufficient to remove the danger, but a quicker method is desirable. Corrosive sublimate, 1 to 1,000 strength, is excellent. It attacks metal piping and therefore makes the repairs too costly.

Lime is the most efficient and being easily obtained is safe and cheap. Any solution of lime which is strong enough to be markedly

alkaline can be tested by touching a small piece of litmus paper to the solution, when, if alkaline, it will turn blue. If the discharges are thoroughly stirred in a solution of about the consistency of white-wash and then turned down the closets, the danger will be reduced to the minimum, and by paying strict attention to the hands and wrists with soap and water and scrubbing-brush, the danger to yourself will be prevented. The sick room should be large, airy, well ventilated and without unnecessary furniture. The bed should be where the light may come to it from the side rather than having the direct rays of light coming over the foot of the bed and shining in the patient's eyes; all unnecessary heat should be excluded, as the fever of the patient would only be increased and the temperature of the room had better be kept at 65 degrees. Open fires are greatly to be preferred for the much better ventilation afforded, with the additional advantage that they do not dry the room as rapidly as hot air furnaces.

Treatment. — Give the patient good air, and frequent spongings with water, cold or tepid, as shall be most agreeable to his feelings. Keep the bowels in order; by which is meant, be more afraid of diarrhoea than of costiveness. Diarrhoea should be restrained by a little brandy. As the sensations of a typhoid patient are blunted and many times their own fancies are mixed up, their time will be well taken in thinking them over, so that attempts in entertaining the patient by reading or conversation are unwise. It is even an exertion for them to fix their attention sufficiently to carry on a conversation. Within the last ten years the great increase in comfort lessened the severity of the disease and effecting recovery of the patient by the use of cold water bathing has caused this method to be almost universally used. With a patient whose temperature is 102° or over, we give baths with water at a temperature of 70 or 75° F. every three or four hours. Sponging the patient off for twenty minutes at a time; keep the head cool in the meantime by means of cool water or ice applications to the head or rub the patient gently to cause the blood to circulate better and stopping bath if the patient shows signs of poor reaction or too much discomfort. The feeding of the patient should consist entirely of milk and broths, that is, a liquid diet until the fever has abated and the temperature has been normal a week. They should have some nourishment every two or three hours even if they do not ask for it; and should the milk cause much distress, lime water in the proportion of a tablespoonful to a glass full of milk should be given. Sometimes milk is not well borne by the patient and if the amounts show the presence of undigested curds, milk should be omitted from the diet, and the place taken by predigested food, as peptonoids or milk which has been digested by the addition of the peptonizing powders, which may be obtained at the drug store. Plenty of water should be given. The amount of fluid during the day should be between two and three quarts, or more if the patient desires it. Cathartics after the first days of the disease are

not given, but the bowels, if constipated, are to be moved by injection of warm water or warm soap suds given daily or every other day. No drug is absolutely necessary until there is some indication for its use. In diarrhœa we may give 10 to 20 grains of bismuth every two or three hours or in other cases a pill containing $\frac{1}{4}$ of a grain of acetate of lead and one grain of powdered opium. For headache we may use phenacetin in 5 grain dose once every three or four hours. For extreme cases of gas in the bowels we may apply cloths wrung out in hot water to which spirits of turpentine has been added, one tablespoonful to a quart, and these cloths wrung often enough to keep them hot. If hemorrhage from the bowels occurs, which is possible during the second and third weeks, small doses of laudanum or morphine may be given to quiet the movement of the bowels, and ice may be applied to the lower abdomen, and the foot of the bed raised. The disease will probably last for from four to eight weeks. The convalescence is tedious, the strength returns very slowly and the possibility of relapse must always be thought of until three weeks have passed from the time the patient's temperature reaches normal.

Bilious Remittent Fever.

THERE are three principal varieties of *periodical fever*, which, though varying considerably from each other in several particulars, are yet essentially, in their substance, but *one disease*. These are *Bilious Remittent Fever*, *Pernicious Intermittent or Congestive Fever*, and *Intermittent Fever* or *Fever and Ague*. According to the custom of most writers, I shall treat them separately, beginning with Bilious Remittent Fever.

Symptoms. — The attack is generally sudden and well marked. Some writers say it has no premonitory symptoms; others that it has. The more general understanding is, that for a day or two, or even longer, before the onset, there is a sense of languor and debility, slight headache, lack of appetite, furred tongue, bitter taste in the mouth in the morning, pains in the joints, and general uneasiness.

The formal onset is nearly always marked by a distinct chill or rigor, — sometimes slight and brief; at other times severe and prolonged. The chill may begin at the feet, or about the shoulder-blades, or in the back, and thence run like small streams of cold water poured in every direction through the whole body. There is *generally* but one well-marked chill, the returns of the paroxysms of fever being seldom, after the first, preceded by the cold stage.

At certain periods of the day there is an increased intensity in the symptoms of the disease, occasionally preceded, though generally not, by the chill. Between this period of severity in the feverish symptoms, and a similar period which follows it, there is generally a decrease in the violence of the symptoms, during which the fever moderates, but does not, as in fever and ague, entirely go off; has distinct *remissions*, but not complete *intermissions*.

During the hot stage, the pulse is up to one hundred and twenty, or one hundred and thirty. There are pains in the head, back, and limbs, of a most distressing kind.

The tongue is generally covered with a yellowish or a dirty-white fur; and in bad cases in the advanced stage is frequently parched, brown or nearly black in the centre, and red at the edges. There is no appetite for food, and generally nausea and vomiting; and usually there is pain and tenderness in the epigastrium. The bowels are at first costive, but afterwards become loose, and there are frequent evacuations of dark, offensive matter.

Causes. — This disease is produced by malarial exhalations from the decomposition of vegetable matter. It is most prevalent in hot climates, and in the summer and autumn.

Treatment. — If the fever be in the formative stage, and have not fully developed itself, give an emetic (1), (2), and follow it with a mild cathartic (7), (13).

If the disease be already developed, sponge the body all over several times a day, with cold or tepid water, according to the feelings of the patient, and give cooling drinks (132), (133), (298), (299). To moderate the fever, give three- to ten-drop doses of tincture, or fluid extract of *veratrum viride*. The compound powder of ipecac and opium is a valuable preparation for the same purpose. Give cold water as drink if desired by the patient, or let him eat ice.

When the headache is very severe, let wet cups be applied upon the temples or behind the ears; and the same remedy to the pit of the stomach, when there is great tenderness, is often desirable; though a mustard poultice will sometimes do better.

During the remissions of the fever, quinine and other tonics are to be given, as in fever and ague. Quinine, in large doses, acts almost as a specific for these diseases.

Malarial or Congestive Fever.

THIS is the pernicious or malignant form of *malarial* fever. It is marked, either in the earlier or later stage, by a rush of blood towards one or more organs, by which they are crowded full and *congested*,—hence its title of *congestive* fever.

Symptoms. — It may be *intermittent* or *remittent*, — more commonly, it is the former. It may assume any of the types of periodical fever, but it is most frequently quotidian or tertian.

The first attack does not differ very materially from a common attack of simple intermittent. The first paroxysm is simple, exciting but little attention. The second is always severe, producing great coldness, and a death-like hue of the face and extremities. The advancement of the disease brings dry, husky, parched, and pungently

hot skin, followed, after a time, by a cold clammy sensation. The eyes are dull, watery and sometimes glassy; the countenance dull, sleepy, distressed; the tongue, at first white, changes to brown or black, and is usually tremulous; the breathing is hurried and difficult. Pressure over the liver, stomach or bowels produces pain. The mind is often disturbed, and falls into lethargy and stupor, or is delirious.

Treatment.— This should be very much like the treatment of the bilious remittent fever.

While getting up from the fever, the diet must be light and nutritious at first, but may be increased in quantity as the strength returns. Exercise out of doors must not be omitted. If recovery be slow, some mild tonic, or a little wine, or ale, or brandy may be taken two or three times a day. Ten grains of quinine, taken four hours before the expected chill, will put a stop to these attacks like magic. After a day or two the dose may be diminished.

Fever and Ague.—Intermittent Fever.

THIS is a kind of fever in which there is a succession of attacks with equal *intervals* and *intermissions* that are complete but unequal, on account of the uncertain duration of each fit.

An *interval* is the period of time between the beginning of one fit and the beginning of the next.

An *intermission* is the period of time between the close of one fit and the beginning of the next.

The different varieties of ague take their designation from the length of the interval in each case.

The interval of a *quotidian*, or *daily* ague, is twenty-four hours.

The interval of a *tertian*, or *third-day* ague, is forty-eight hours.

The interval of a *quartan*, or *fourth-day* ague, is seventy-two hours.

Symptoms.— The disease first develops itself by an *ague-fit*. This has three stages, the cold, the hot, and the sweating. The cold stage is very marked: The patient has a sense of debility, yawns, stretches, has no appetite, and does not wish to move. The face and extremities become pale, the skin shrinks, causing universal *horripilation*, or *goose-flesh*; the patient shakes, and his teeth chatter.

After a time, these symptoms decline, and the hot stage comes on, which is characterized by high fever, with its various uncomfortable sensations.

When this fever passes off, it is followed by the *sweating stage*, during which a moisture breaks out, which increases, frequently, to a profuse sweat; the body returns to its natural temperature, the pains and aches disappear, and a feeling of health comes back.

During the cold stage, the blood is driven inward from the surface, and particularly oppresses the spleen, which, in cases of long

standing, becomes swelled and permanently enlarged. This swelling may be plainly felt, and is often quite perceptible to the eye. It is called *ague-cake*.

Ague-fits begin at different hours of the day, and generally terminate in the evening.

A quotidian usually begins in the morning; a tertian at noon; and a quartan in the afternoon.

The cold stage is shortest in the quotidian, and longest in the quartan.

Thus the longest fit has the shortest interval, and the shortest cold stage; while the shortest fit has the longest interval, and the longest cold stage.

There are also double tertians and double quartans, wherein the fits repeat themselves, — sometimes the same day, at other times on alternate days.

To these varieties, the terms *postponing* and *anticipating* are applied, according as the intervals are growing longer or shorter. When a person is recovering from ague, the interval may gradually grow longer, the attack being *put off*, or *postponed*. But if the disease be increasing in severity, the attack may *anticipate* its usual period, making the interval shorter.

Tertians are more common than either quotidians or quartans.

Agues are more prevalent in spring and autumn. Fall agues are most severe and dangerous.

Causes. — Exhalations from the soil, called *malaria*, arising from decomposition of vegetable matter in new countries, or from low and marshy districts in which the land is alternately covered with water, and again left dry and exposed to the sun.

In districts where it prevails, high hills are exempt, and even the upper stories of houses are more healthy than the lower.

Treatment. — First clear the bowels with the fluid extract of senna (15), or the preparation (21). Then, in the cold stage, give hot, and in some cases, stimulating drinks. Administer hot foot-baths, and putting the patient in bed, apply bottles filled with hot water to the feet, sides, and back, and in every way try to excite warmth and comfort.

In the hot stage, give cooling drinks, and camphor (117), (118) in decided doses; or, what is better, quinine (67) in two-teaspoonful doses every half hour, at the same time giving five-drop doses of tincture or fluid extract of veratrum viride every hour.

During the sweating stage, stop the veratrum, and rub the patient with dry towels.

In the intermission, give quinine (62), in three-grain doses once in three or four hours, and continue it, gradually decreasing the dose, a fortnight after the cessation of the attacks. The following is a good preparation: quinine, one scruple; elixir of vitriol, one dram; dis-

solve the quinine in the elixir, and add tincture of black cohosh, fourteen drams. Twenty drops are to be given, in a little water, once an hour.

Quinine is the one medicine which surely relieves and cures this disease.

It is important, in fever and ague districts, to avoid the hot sun, and the damp evening and morning air.

Yellow Fever.

THIS disease belongs to warm climates, being most prevalent in Southern cities. It makes its appearance chiefly in the latter part of summer, and disappears upon the approach of frosty weather.

Symptoms.—The complaint begins, generally, with a chill, which is sometimes severe, though commonly moderate, of short duration, and rarely repeated.

Following this chill, there is moderate fever and a little heat of surface; but this rarely rises to any considerable height, and only continues to the second or third day, when, in fatal cases, it gives place to coldness of surface, etc. In many cases there is sweating.

The pulse is peculiar, — not easily described, — generally not rising above one hundred in a minute, — a kind of *bubble* under the finger, which breaks and vanishes before it can be fairly felt.

The tongue is moist and white in the first and second days, but red, smooth, shining, and dry, as the disease advances towards the close, having a dry, black streak in the middle.

The most striking symptoms are nausea and vomiting. The vomiting, in fatal cases, is generally very persistent, and towards the termination, the yellowish or greenish matters thrown up give place to a thin and black fluid, having a sediment looking like coffee-grounds. This is called the *black vomit*.

The bowels are generally costive, with frequent epigastric tenderness and distress. There is generally severe headache, and a peculiar expression of countenance, in which the lips smile, but the rest of the face is fixed and sad, sometimes wild. The patient continues wakeful night and day. There are discharges of blood, often, from the nose, the gums, the ears, the stomach, the bowels, and the urinary passages.

The mortality varies according to location, as well as during different epidemics; three out of four die during some epidemics, while in others only about one in five.

Treatment.—The bowels should be moved, if required, by means of calomel which may be followed by epsom salts or oil; this should be continued in order that the waste products may be thrown from the system as fast as they form. Large injections of hot water to which has been added salt in the proportion of a teaspoonful to a quart of water. For the excessive vomiting, which usually is present, carbolic

acid and creosote in 1-drop doses, well diluted, or cocaine, $\frac{1}{4}$ grain may be used. The latter will probably also help the hiccough if present, or the compound spirit of ether known as Hoffman's anodine in 10 to 20-drop doses may be given. For the support of the heart digitalis, 5 to 15 drops of the tincture; strychnia, 1-30 of a grain, cocaine in $\frac{1}{4}$ grain, or strophanthus in 10-drop doses of the tincture may be given. The kidneys must be kept in an active state of secretion and assisted in their work by requiring the patient to drink a large amount of water and some stimulant to the kidneys such as the citrate of acetate of potassium in 10 to 15-grain doses four or five times a day. The diet should be that which has been recommended in the other fevers, and tonic containing iron, quinine and the bitters must be given for some time.

Rheumatism.

THIS is an inflammation of a peculiar character, being caused by acid or poisonous matter in the blood, and having for its seat the *fibrous tissue*, or that thready texture which enters largely into the composition of the cords and muscles of the human body. The *synovial*, or lining membrane of joints, is also peculiarly subject to rheumatic inflammation. Hence the terms, *muscular rheumatism*, and *synovial rheumatism*. There are also acute and chronic rheumatism.

Acute Rheumatism

Is a very painful affection. It is most frequently brought on by exposure to wet and cold after violent and fatiguing exercise of the muscles.

Symptoms. — Its principal characteristics are, high fever, with a full, bounding pulse; furred tongue; profuse sweat, which has a sour smell, and seems to increase the weakness without relieving the pain; scanty and high-colored urine, with brick-dust settlings; and swelling of the joints, with slight redness, great tenderness, and severe pain, which is particularly agonizing when the patient attempts to move.

This affection often changes suddenly from one part of the body to another, or from one set of joints to another. This sudden shifting, termed *metastasis*, is peculiarly dangerous; for sometimes the inflammation, seeming to regard the constantly moving heart as a large central point, suddenly seizes upon its lining membrane and occasionally proves speedily fatal.

Treatment.

For articular rheumatism, some form of the salicylates must be used and continued till all pain and soreness have entirely ceased for several days. Omit all sweets, condiments, and much meat from the diet.

For relief of a pain locally in the joints a mixture of wintergreen oil, known in the drug store as gaultheria, and laudanum, two parts of the oil and one of laudanum, may be spread on ordinary cotton batting and wrapped around the joints, and a teaspoonful of this mixture which has been warmed in an iron spoon and then placed on the joints with the cotton batting will soothe the joint from two causes, the quieting effect of the opium preparation and the absorption of the wintergreen oil will produce the same effect as the salicylates which are of the same family and which it is recommended to take internally. This preparation is deadly poison and must be kept from the reach of children.

Salicylic acid and its salts, or salicin, the active principle of the willow bark, when given at the commencement of an attack, oftentimes arrests the course of the malady as effectually as quinine arrests the intermittent fever, or as opium and ipecacuanha arrest dysentery. It exerts such a beneficial influence that it is recognized by the profession as a specific. From ten to fifteen grains of salicylic acid, or the salicylate of soda should be given every two hours until relief is obtained. This usually takes place in from twelve to thirty-six hours. In most cases the fever and swelling will abate within the above time. If not entirely arrested, the disease is very much shortened.

When the specific effect is produced on the system, it causes vertigo, headache, ringing in the ears. These symptoms indicate that the medicine should be reduced in amount.

Chronic Rheumatism.

THE chronic form of rheumatism may follow the acute as its consequence, but is more often an independent disease. It is seldom attended by fever, and in this differs from the acute rheumatism. It often lasts a long time, and causes much suffering.

Symptoms. — These are various, but are generally understood, even by the common people, to consist of pain, lameness, stiffness, etc., in the joints and other parts. The joints are often swollen, but not as much as in the acute disease. It is peculiar to this form of the complaint, that when the patient remains at rest for a time, he will have pain and stiffness in the affected part on beginning to move, but as he grows warm both will disappear.

Treatment. — This complaint is often palliated, and sometimes cured, by passing a current of electro-magnetism through the affected part. The diet is all-important; no sweets nor fats should be allowed, nor spices and other rich condiments are to be taken; meat is to be eaten but once a day,

The tincture or the fluid extract of black cohosh, taken in full doses, is one of the best remedies. It may be taken alone or mixed

with the tincture of poke-berries, and a tincture of prickly-ash bark, if convenient.

Opium and nitre (127) form a valuable remedy. Colchicum is much used, and has a deservedly high reputation (292), (301).

Liniments often have a good effect (190), (195), (196), 198). It is well to wear a piece of oiled silk over the affected part. It keeps up a gentle perspiration from the rheumatic surface, and materially hastens a cure. Iodide of potash in ten- to thirty-grain doses, with one-third glass of water, after food, three times daily, is an old but very efficacious remedy. The salicylates in this form are not without their special value, but are not so useful as in the acute form. The "Wonderful Wintergreen," Iodia, Tongalin, are a few of the well-known reliable preparations that may be found on the market, each of which well deserve a trial in chronic rheumatism.

To bathe the affected joint at bed-time with hot sweet oil, and then envelop it in cotton batting, to be kept on through the night, will often give much relief. Oil of cajeput relieves a large proportion of cases.

The bowels must be kept regular, and all exposure to wet feet or clothes, and to currents of cool air when sweating, must be carefully shunned.

Gout

GOUT is rheumatism's cousin; the parentage of both belong to the brotherhood of the *acids*.

A very acid state of the blood, or a state favorable to the formation of acid, is supposed to be the cause of the inflammation peculiar to both these disorders. In rheumatism, an acid which exists in sour milk, and in cider, called lactic acid, is thought to be the disturbing element. In gout, lithic or uric acid is known to be uncommonly abundant, and to form a principal ingredient of those concretions found in gouty joints and familiarly called *chalk-stones*.

The larger joints are most often affected by rheumatism; while gout prefers the smaller ones. In rheumatism, the pain is *excruciating*; in gout, it is *intolerable*. There is truth in the humorous Frenchman's description of the pains of these two complaints, which is, in substance, as follows: Place your joint in a vice; turn the screw till you can bear it no longer; that gives you an idea of rheumatism; now give the instrument one more turn, and you have gout.

Symptoms. — A fit of the gout, as it is called, generally makes its attack in the night. Its unsuspecting victim is first awakened, perhaps an hour or two after midnight, by an intensely burning, wrenching pain in the ball of the great toe, or some other small joint. This pain, with its accompanying symptoms of fever, continues with little abatement for twenty-four hours. There is then a distinct remission, when the sufferer may get some sleep. He has a similar experience

during several succeeding days and nights, when the disease, which has been growing milder, leaves him.

After a considerable interval, there is likely to be another similar visitation. The length of this interval is inversely as the number of attacks, — that is, it diminishes in length as the attacks increase in number; in yet plainer and more homely terms, the attacks come “thicker and faster”; the space between them gradually shrinking from three or four years to one or two months.

Recovery from the first attack may be complete, — the skin peeling off from the red and swollen joint, and leaving it strong and supple as ever. But, after several repetitions of the inflammation, the joint becomes stiff, its motions being obstructed by the deposit of lithic acid concretions, or chalk-stones, the limbs are sometimes actually frosted over with crystals of urate of soda (Fig. 149). This form of urate of soda crystals differs very materially from Fig. 124. When these crystals appear upon the surface, and deposits are made in the joints, uric acid is not secreted as usual by the kidneys, but accumulates in the blood.



FIG. 149.

But gout is a disease by no means entirely local in its character. It vitiates the blood, affects the system generally, and is often betrayed by general symptoms long before the local mischief is indicated by one of the attacks. Irritability of temper, unpleasant sensations in the stomach and head, and various uncomfortable feelings of body and mind, have been considered as premonitory of this disorder. Many other organs also, besides joints, are subject to the gouty inflammation. The stomach, heart, lungs, head, and even the eyes, are known to have been thus affected.

Causes. — Luxury and indolence — particularly the former — are regarded as the principal causes of gout. But poverty and activity will not always keep the disease away. Probably an improper diet has more to do with the creation of gout than all else. Starchy food, sweets, etc., which cause an acid fermentation, are most likely to set up the trouble.

Treatment. — Colchicum is the remedy for gout. It removes the disease by exciting the kidneys to action, so that the poison is conveyed away in the urine. Perhaps it acts in some other unexplained way as an antidote to the disease. One teaspoonful of the wine of colchicum may be taken two or three times a day, until relief is experienced. It should then be continued, in ten-drop doses, for a few days longer, to prevent a relapse. The colchicum may be taken in the form of prescription (301).

Coffee, drunk freely every day, is said to be a sovereign remedy for gout.

The bowels must be kept in order, but not actually purged (34), (40). The diet must be simple and unstimulating.

Let the inflamed joint be bathed often in a saturated solution of bicarbonate of soda in soft, warm water. Cold applications should not be made, as there is danger of provoking a sudden change of the inflammation to some internal organ.

A regulation of the diet and open air exercise are the best methods of fighting the disease.

Scrofula, or King's Evil.

THE word scrofula is derived from the word *scrofa*, meaning swine, and was used in this connection by early students of medicine because people affected with this trouble resembled hogs. The swelling is due to a greater or less enlargement of the glands in that region which are very numerous. It has been said to be caused by many diseases, but since the discovery of Professor Koch it is well known that the disease is identical with tuberculosis, or consumption, but in this trouble the disease is in a very mild form and if the germ does not break into the air passages and infect the lungs or throat and other parts of the body, the danger is very small. The action of the glands in the throat and throughout the body is probably to take from the circulation all poisons that it is possible to remove. This action is similar to the action of the kidneys which remove the poisons from the blood and glands in the intestines which remove the valuable elements from the food which has been taken into the body. Other glands beside these, which are known as cervical glands, are the glands in the region between the heart and lung, known as the mediastinal, those of the mesentery or fatapron which are in the abdomen to protect the bowels, and those back of the lining of the bowels known as the retroperitoneal. These glands can be affected through the tonsils, as in sore throat, bad teeth or ulcerated gums or other infections, by the lung in consumption, of the pleura of the heart and even through the bowels.

Symptoms.—Their presence can be known by the presence of kernels just beneath the skin at the angle of the jaw and in the region of the windpipe and in the other regions that could only be suspected or found after careful examination. The patients are usually thin, pale, with prominent veins, small bones, large and staring eyes and hectic flush on the cheeks. They are especially liable to be feverish at night. Their circulation is poor, as shown by cold feet and hands, and very likely have some skin trouble almost all of the time, such as a rash or many pimples about the scalp, face and ears. The eyes may become affected, the hairs of the lash drop out and discharge be present.

Treatment.—The treatment of the gland itself should be surgical if the presence of pus is shown by sudden tenderness appearing over it. Under perfect aseptic conditions, which is described under surgery, the gland should be opened, the pus allowed to drain out, the

inside scraped and an antiseptic dressing continually kept on until the matter has all drained away.

The constitutional treatment is of great importance, as in many cases the glands can be prevented from breaking down and in others can be made smaller. Iodine in the form of the tincture may be painted on with a camel's hair brush, or better still, in the form of iodine vasogen, which is a preparation of iodine and an easily absorbed ointment, or petrogen, very similar to the latter may be rubbed into the glands in small amounts twice a day. Some preparation of iodine internally is also indicated. Iodide of potash in 5-grain doses well diluted three times a day, or a preparation called soluble iodine in 2 to 5-drop doses three times a day, or the syrup of iodide of iron in 5-drop doses given in milk. Great attention should be paid to the improvement of the general health. The diet must be nourishing, large in amount, and forced on the patient. There cannot be too much milk, cream, eggs, meats, potatoes and easily digested vegetables given; hygienic precaution must be taken, baths, exercise, sleep, place of rest, good sanitation and pure air must all be taken into account. Cod liver oil, either as the pure oil or as some of the various emulsions, tasteless, if the stomach repels, or the stronger preparation may be given.

Scurvy. — *Scorbutus.*

OWING to a better knowledge of this disease, and of its proper treatment, it is much less common than in former years. It chiefly affects seamen who make long voyages; but is not entirely unknown on land.

Symptoms. — Languor, loss of strength, and great depression of mind, are among the first signs of scurvy. To one about being attacked, work and play are alike burdensome. There is no heart even to move. The face and the whole skin look pale and bloated, and the breath has a fetid smell. The gums are swelled, soft, red, and spongy; and they bleed upon the slightest touch, — sometimes the blood oozes from them spontaneously. The teeth get loose, and often fall out. The skin becomes covered with bluish or purple spots, — looking precisely like bruises. These spread and run into each other, forming large patches of discoloration.

These spots appear to be formed by the bursting of the small capillaries of the veins and arteries, which have grown too weak and rotten to hold their contents, and the infiltration of dissolved blood into the cellular substance under the skin.

Ulcerous sores break out in various parts of the body, which smell badly, and discharge a thin matter. These ulcers are covered with a crust. Various parts of the body, the bones included, are twinged with pains. The pulse is weak and soft. All the secretions, including the urine, have an offensive smell, — as though the whole body were approaching putridity. In truth, the whole man seems to be

disintegrating, decaying; the flesh becomes soft, and dwindles; and the bones break easily, — being afflicted with a decay approaching to rottenness.

In bad cases, blood is discharged from the bladder, bowels, womb, nose, and mouth; and the smallest exertion is followed by fainting, and in many cases, by sudden death.

Causes. — The disease is owing to the use of food and drink beginning to be decomposed, and to living long at sea without vegetables containing certain acids. Its attacks are likewise encouraged by whatever weakens and depresses the nervous system, as long exposure to a moist, damp air, particularly when this is connected with confinement on board a ship, unclean linens, occasional loss of the usual rest, and great fatigue, as in storms. The force of these causes is increased by the loneliness, the sadness, and the despondency of the sailor's life.

Treatment. — Sailors are very much protected from the disease now, by frequent returns to land, during long voyages, to procure fresh meats, vegetables, and water. This practice is very generally adopted, particularly by whale-ships, which make long voyages; and the result is, very little scurvy, and general health among the men.

One of the best medicines for the disease is quinine; it may be given in from one to two-grain doses twice or three times a day. Gentian and quassia are also suitable remedies; so is the muriatic tincture of iron (73).

But the best of all remedies are fresh and succulent vegetables, and also fruits. Spinach, lettuce, dandelion, sorrel, cresses, and the like, are among the very best things when they can be had. Lemon or lime-juice produces the happiest effects. Potatoes are among the very best remedies, — particularly if scraped and eaten raw. They are also valuable when cooked. Spruce beer is a good antidote; and may be made at sea from the essence. Many kinds of beer may be brewed at sea, which are valuable.

When the bowels are costive, cream of tartar, dissolved in water, and drunk freely, will be found the best remedy. If there be looseness of the bowels, morphine, laudanum, a tea made of logwood, or geranium, or the tincture of catechu, will be suitable.

For the spongy gums, a solution of alum applied to them will be proper, or a mixture of equal parts of tincture of myrrh, catechu, and Peruvian bark; and ulcers may be washed with the same.

Vinegar, which is an excellent preventive in this disease, may be made at sea from molasses and water exposed to the sun. Two ounces of nitre dissolved in a quart of vinegar, and given in tablespoonful doses, three times a day, is said to be an excellent remedy.

Every ship, on going to sea, should be supplied with dried fruit, as raisins, currants, whortleberries, prunes, etc.; and should have peas,

beans, rice, flour, sugar and molasses. Beside these, ships should have essence of spruce and lemon, and dried balm, sage, pennyroyal, and other herbs.

Seamen, when down with this disease, should be moved with care, as the spark of life may be easily extinguished.

Purple Disease. — *Purpura Hemorrhagica.*

THIS has been sometimes ranked as an affection of the skin; but it is not such; it is rather a disease of the general system.

Symptoms. — The complaint is known by the appearance upon the skin of two kinds of spots; the one kind are small, round, bright-red points even with the surface, and changing in a day or two to a purple or livid color, which are yellowish brown when about to disappear. This variety of the purples is quite simple, attacking, generally, young persons, and in warm weather. It is sometimes tedious in its course, but never dangerous. It requires little treatment — pure air, wholesome diet, with quinia and the mineral acids, make up the chief part of it. It may be known by the spots not disappearing when pressed upon by the finger.

The other and more dangerous variety of the disease is attended, generally, by faintness, wandering pains, great debility, and the appearance upon the legs, arms, and body, of dark-red spots, and irregular, livid patches, looking just like the marks of recent bruises. These marks are caused by the effusion of blood in patches under the skin; and in this respect they are just like bruises, only they are produced by different causes.

In the rapid progress of the disease, dark venous blood frequently oozes from the tongue, mucous membrane of the mouth, nose, breathing tubes, ears, vagina, womb, stomach, etc. The other symptoms vary in different cases very much, but generally indicate great disturbance of the system.

It often runs a very rapid course, but sometimes remains for months. The disease, as seen in this country, is oftentimes associated with rheumatism, it not infrequently being the forerunner of a long and tedious rheumatic outbreak.

Treatment. — The bowels are to be kept regular by gentle physic (26), (21), (12), (15).

Iron is a valuable remedy (73).

Astringents generally have a good effect (156), (159), (279), (305). The best astringent in this complaint is gallic acid, taken in five-grain doses every three or four hours.

The sponge bath, twice a day, with tepid or cool water, and followed with gentle rubbing with a coarse towel, will do much to restore and equalize the circulation in the skin.

During the active stage of the disease, the diet should be very

light, — simple toast-water, rice and arrow-root gruel, and either alum or wine whey.

While getting well, the patient may have a more nourishing diet, consisting of tender fresh meat, broths, etc.; and must take gentle exercise in the open air.

When associated with rheumatism, the latter disease should be treated on the same lines laid down elsewhere for rheumatism.

Iron usually is the mainstay for building up the blood, and should be given in some mild, unstimulating form, such as Bland's pills, or pepto-mangan, peptonate or albuminate of iron, etc.

Diphtheria.

DIPHTHERIA is an acute, contagious and infectious disease, whose characteristic feature is the formation of a pseudo-membrane upon a mucous surface. It is a comparatively recent disease in this country, and only lately well understood as to its origin and pathology. The excessive mortality of this disease within the last fifty years has been so great as to justly frighten all parents at its approach, and lead them to regard it as the most terrible of all modern scourges. In New York city alone, over fifty thousand deaths have occurred in twenty-five years. It is one of the most fatal, as well as one of the commonest of children's diseases. It is impossible to say at the outset whether the type will prove to be a mild or severe one. A case commencing with sudden, severe constitutional symptoms and high fever may go on to recovery; while one with slow, gradual development, and little systemic disturbance, may progress gradually and end in death. Nor is the amount of membrane present in any case a guide as to the final outcome of the case. Many very mild cases may not at first be recognized as diphtheria until later, when some post-diphtheritic paralysis or other complication ensues. These mild cases are equally contagious, and often the origin of a severe and most malignant epidemic.

Cause. — True diphtheria is caused by a germ known as the Klebs-Löffler bacillus, either alone or in company with other germs; it is originally a local disease, becoming general as the poisons emanating from these germs are absorbed into the system.

This bacillus is always present in diphtheria, and found only at the site of the local infection, and when injected into animals produces all the characteristic symptoms of the disease.

In doubtful cases, recourse is now had to the finding of these germs by cultures made from little particles taken from the suspected membrane.

There is, besides the true diphtheria, a pseudo-membranous inflammation which runs a mild course, but which cannot be distinguished clinically from the real disease, except by making these cultures in the laboratory; in the latter disease, the Klebs-Löffler bacillus is

always absent. On the other hand, there are often seen cases of true diphtheria so mild in character, and showing so little membrane, as to pass unnoticed, but which on bacteriological examination prove to be the dreaded disease; hence in all doubtful cases arises the necessity, in these modern times of refinement in diagnosis and treatment of disease, of having an examination made that the exact disease may be properly diagnosed, and the appropriate treatment be speedily instituted. The development of bacteriological science within the last few years renders this a very practical and sure test of the presence of the disease. Accepting the proven origin of the disease to be microbic, still there are many circumstances influencing the development or arrest of the germs when once introduced into the throat, since it is one of the most variable and uncertain of the contagious diseases. It is said that a normal throat will not be attacked by the bacillus, while one with some slight abrasion, inflammation, or other lesion, certainly offers a fertile field for its development. It is essentially a disease of childhood, although it occurs at all ages. Cold and dampness, and all unsanitary conditions, are known to favor the germ development.

It occurs mostly in cold weather, as at this time catarrhal conditions are present, favoring the rooting of the germ.

Propagation. — The germs are introduced for the most part by the air, although food may contain these bacilli. Domestic animals have been known to frequently convey the poison. All articles of furniture, clothing, the hands of attendants, etc., are common carriers of the diphtheritic germ, which is very tenacious of life, unless previously disinfected, hence the absolute necessity of the greatest care in thoroughly cleansing everything which has come in contact with a diphtheritic patient. The writer once had the disease. The mattress on which he slept was put away, after a simple cleaning, in the attic for two years, and when later on it was brought down to accommodate his two little brothers on one occasion, the disease was communicated to them and they both died.

Incubation Period. — This is quite uncertain in the ordinary case of air inoculation, depending on the condition of the throat, but probably it varies from one to twenty days. In the case of inoculation of the bacillus into the tissues of animals the period is only from one to three days.

Location of Disease. — The tonsils, uvula, pharynx, nasal passages and the larynx are the ordinary locations where the membrane is formed, but it may be found less commonly on the conjunctivae, border of the anus, vagina, and respiratory tract.

All the internal organs may eventually become involved through the absorption of the germ poisons, and at the autopsy show marked hemorrhages, inflammations, congestions or fatty degeneration of their tissues.

Symptoms and Diagnosis. — The characteristic feature is the membrane, which is apt to be of a dull gray color, firmly adherent to the tonsil or throat, spreading gradually and becoming thicker. To distinguish it from simple follicular tonsilitis, which is so common, is often difficult and frequently impossible without a bacteriological examination. The membrane of simple tonsilitis is white, beginning as little white specks like the curd of milk, and is usually easily removed without bleeding. The membrane of diphtheria spreads and attacks the uvula and back of the throat, the adjacent tissues become swollen, the neck increases in size, breathing becomes more difficult, the pulse more rapid and smaller, and prostration with drowsiness, as a rule, more and more marked.

In simple cases, there is usually not much fever, but in severe cases the temperature may run high, with great prostration and languor; delirium and restlessness accompany the severe cases of great absorption of poison. The heart usually is rapid, with feeble pulse, but many severe cases have a very slow pulse, which ordinarily is a bad symptom. The heart in diphtheria is always the uncertain element, many cases dying suddenly and unexpectedly from heart paralysis. Albumen often appears in the urine, and is usually an evidence of the involvement of the kidneys; this nephritis may become chronic and persist long after the convalescence from the original disease, and may even prove fatal. When the membrane is deposited in the nares, the breathing is more labored, and bloody mucus may be seen in the nostrils, which hardens, forming crusts, or may run down on to the lip and cause sore places. As the tonsils grow larger and the nose becomes plugged, sleep is more and more disturbed by snoring and inability to properly inspire the air, so that the child tosses from one side of the bed to the other every few minutes. Add to this an encroachment by the membrane on the vocal chords or the larynx, and one sees a truly terrible malady, distressing in the extreme. The encroachment into the larynx is suspected when the voice becomes husky and hoarse; it finally may be reduced to a whisper. The membrane may be limited to the larynx alone, as in the so-called *membranous croup*, which is no more or less than diphtheria of this region. The symptoms of this affection are at first local, and as the disease progresses, become more and more marked and distressing till death ensues from suffocation. The face becomes blue, the chest heaves with the deep, labored respirations, the nostrils dilate, and the little spaces below the collar-bones more and more depressed and drawn in.

The severity of the case depends much on the amount of absorption from the throat, nose, or pharynx, of the toxins produced by the growth of the germs on the one hand, and the ability of nature on the other hand to resist the invasion.

The odor of the breath in diphtheria is characteristic, and when once experienced is never forgotten.

Sequelae. — Besides the chronic catarrh which is left at the original site of the membrane, and the anæmia (or paleness consequent on the impoverished blood), the most frequent, and the most characteristic sequel of diphtheria is paralysis, which comes on in from one to five weeks after convalescence. This paralysis lasts from two to six weeks, though it may last for months, and even for a lifetime. It is in no wise, apparently, proportionate to the severity of the disease. It is seen in all parts of the body, particularly the throat and nose, causing a nasal twang to the voice, and the regurgitation of food through the nose. It may affect the muscles of deglutition and speech, may attack the legs, arms, diaphragm, and the sphincter muscles of the bladder and rectum.

Prognosis. — The prognosis varies according to the age and health of the patient, the severity of the symptoms, place of attack, and the character of the epidemic prevailing; nasal and laryngeal complications, as well as the large area of mucous membrane involved, increase the risks of the patient. The mildest cases may terminate fatally from relapse. The heart may give out at any time, and death may be close at hand when apparently all is going well. Unfavorable symptoms are pallor, prostration, vomiting, and inability to take much nourishment, weakness of pulse with great rapidity or slowness, hemorrhages into the skin, restlessness and delirium.

Prophylaxis. — The complete isolation of the patient in a room of the top story, supplied with as little furniture as possible, is requisite. All utensils and dishes should be thoroughly disinfected before taken out of the room. All discharges received into a vessel containing corrosive sublimate. All clothing should be boiled when possible.

During the disease, some volatile oil, like eucalyptus, turpentine, carbolic acid, etc., should be vaporized through the room. The nurse in charge should not be in communication with other members of the household, nor children of the family allowed to play with others in the neighborhood, although they should be kept out of doors liberally, but carefully fed and in every way protected from catarrhal disorders. The patient after convalescence should be thoroughly bathed with soap and water, and finally with corrosive sublimate solution, including the hair. As much as possible of the furniture and other equipments that cannot be thoroughly cleansed by boiling water, steam or corrosive sublimate, should be destroyed; finally the room and its contents should be fumigated with sulphur fumes by burning three pounds of sulphur to every thousand cubic feet of air space.

Members of the family should be kept from school and church and other public places, and their mouths and nostrils daily washed with some disinfectant like carbolic-acid gargle. Only thin, washable clothing should be worn in the sick room.

Treatment. — From the first the treatment should be supportive, tonic, and stimulating. The temperature of the room should be kept at about seventy degrees, and plenty of fresh air and sunlight admitted. The clothing and bedding should be changed frequently, and the recumbent position without exertion be insisted on. The diet should be liquid, and given every two to four hours, in definite quantity, not exceeding what the child can easily digest. Beef-tea, milk and lime-water, egg and milk, Bovox or Bovinine in milk or water, are samples of the class of foods to be administered. Alcohol in the form of brandy, whiskey, champagne, etc., should be given freely; there is more danger of giving too little than too much. The more septic or poisoned the patient, the more the alcohol will be tolerated and required. Very large amounts are taken in this disease, as well as in all severely septic diseases. A five-year-old child will easily take from two to fifteen ounces of whiskey a day. Other valuable stimulants are strychnine, digitalis, ammonia, camphor, etc.

Fever when high should be allayed by cold sponging or the cool bath. All hemorrhages, diarrhœa, or other exhausting complications must be stopped. Of internal treatment, perhaps none has stood the test of time better than that recommended years ago by Dr. Jacobi of New York, of which the following is an illustration: —

Corrosive sublimate, one-half grain; wine of pepsin, four ounces. Teaspoonful every two hours, for a child five years old. This is an antiseptic to the intestinal tract, and helps disinfect the system. *Locally*, the throat is to be sprayed with a solution of peroxide of hydrogen. If this smartes or excoriates the mouth, it may be diluted even to equal parts with lime water. This solution may be injected through the nose. It must be used freely and often.

To destroy the bacilli, a one part to one thousand solution of corrosive sublimate in the form of spray may be used after the cleansing with the peroxide of oxygen solution, or what has recently been introduced as the Lœffler diphtheria spray, which consists of several antiseptics.

The use of papoid, papayotin and other solvents of membranes, is frequently very beneficial: they may be sprayed or swabbed on to the throat. The sequelæ are to be treated on general tonic principles; the catarrh is to be treated by the application of mild nitrate of silver solutions, and the paralysis by strychnia, massage, electricity, and general tonics.

These measures constitute the main essential points in treatment in those cases which for any reason do not receive the modern *antitoxin* treatment.

Since the better understanding of the Klebs-Lœffler bacillus, attempts have constantly been made to produce an antidote to the diphtheria poison, and it would now seem as if bacteriology had at last revolutionized the entire treatment of diphtheria, for of late a remedy called antitoxin has been found and successfully tested. The

death-rate of diphtheria has been reduced nearly one half; apparently, one of the greatest boons ever sent to humanity has been realized in antitoxin.

For some time it has been known that the serum of animals immune from diphtheria, when injected into susceptible animals, would prevent the infection of cultures made from the Klebs-Löffler bacillus; and at last the essential elements, or the antitoxin, has been isolated.

Not only has it been found that the injection of a given amount of antitoxin into the human subject would kill out the diphtheria, but also that, when injected into children not yet taken down with the disease, but who have been subjected to it, this antitoxin would actually prevent the occurrence of the disease in them, or, technically speaking, render them immune.

For over a year now this modern blessing has been enjoyed by thousands of people all over the world. Reports are everywhere published by public institutions and private practitioners, speaking in figures more convincing than any statement could be, of the greatest advance in medicine that the last half century has witnessed. It is to diphtheria what Listerism was to surgery.

The essential features of this treatment consist in the injection into some convenient part of the body, like the back, loins, or thigh, of a certain amount of this liquid proportionate to the age of the patient, the severity of the disease, and the time elapsed since the outset of the symptoms.

The dosage varies with all these conditions, and the particular variety of antitoxin employed. The repetition of the dose depends on the amount of improvement in the membrane. At first a reddening about the diphtheritic patch is seen, then a thinning out of the membrane and a general amelioration of the symptoms. To prevent the occurrence of the disease, only quite a small amount is required, and it needs to be injected but once. The great advantage of this treatment, outside of its favorable statistics, is the comfort derived by the patient in not being so frequently disturbed by other auxiliary treatment, as nothing else is required to be done when the case is seen early. As a matter of fact, cases are often seen so late, and the poison has so successfully invaded the system as to render the antitoxin treatment less potent, that medical men employ local measures to help out the antitoxin. The earlier the treatment is begun, the less antitoxin will be required, and the surer the successful issue.

Like all great advances in medicine and surgery, this method is not without its enemies, who will tell of the ill effects to the blood experienced later in life. The only ill effects are certain rashes resembling hives, or urticaria, situated generally near the site of the punctures and due to local irritation. These all pass off in a few days, and are only annoying at the very worst. Should abscesses occur they may be put down as the result of an unclean syringe, or ascribed to the neglect of proper aseptic precautions on the part of the physician.

This antitoxin serum, taken from horses after repeated inoculation, may now be obtained from local boards of health, and other similar authorities, thus enabling the poor to be able to procure free of cost this antidote against the most ravenous of diseases.

Canker. — *Aptha Communis.*

VERY few, if any, standard medical writers have treated of canker. In truth, it is only a symptom of various complaints, and not itself a disease. It has accordingly been shut out from medical books. It afflicts — yes, *sorely afflicts*, numerous persons, who, though doubtless affected by some constitutional disturbance as its cause, are not conscious of any complaint except this single manifestation — canker. You find not only the disease, therefore, but complaints respecting it, in almost everybody's mouth: "What shall I do for the canker?" meets us at almost every turn. "I am sorely afflicted with the canker," says one. "I am literally sick with the canker," says another. And a third says, "I can neither eat, nor converse, nor take rest, I am in such pain from canker in my mouth." And these complaints are not unnatural, for the sufferings occasioned by this affection are indeed terrible.

Canker begins in the form of small blisters, generally upon the tongue, or inside of the cheeks or lips, or stomach, which, after a time, break and form little ulcers, which are oftentimes very sore and painful. These ulcers will, at times, not only multiply, but spread themselves to large dimensions, going deep into the flesh, and becoming painful almost beyond endurance. In many cases, the parts swell, and become so sensitive and tender that it is almost impossible to swallow the blandest food. The mouth will frequently become filled with saliva, which runs involuntarily out, to the great annoyance of the patient.

Treatment. — Canker is frequently dependent on a deranged state of the stomach and bowels. When this is the case the treatment may begin with a dose of gentle physic (12), (15), (19), (26). If the stomach be quite permanently deranged, let this be followed with a somewhat prolonged use of prescription (28) or (37), or of the neutralizing cordial. If the mouth be very sore, use a tea of slippery elm bark, or flax-seed, or a solution of gum-arabic; and as the inflammation subsides, touch the ulcerated patches with the stick nitrate of silver (lunar caustic); or use gargle (201), (202), (203), (205), (208), (209), (232), (243), (244), or sulphate of copper, eight grains dissolved in two ounces of water. A tea made of raspberry leaves, or blackberry roots, may be freely used as a drink.

One of the best remedies is hamamelis. Of this a dessert-spoonful may be held for a few moments in the mouth and then spit out. A teaspoonful may be taken internally, once an hour until relieved. Receipe 205 is not only useful as a gargle, but may be reduced by

adding one pint of water, and may then be swallowed four or five times a day, in doses of two tablespoonfuls at a time.

The diet should always be carefully regulated, and only the more simple food taken, and at regular meals.

To rapidly heal a canker spot, touch it with a wooden tooth-pick which has been dipped in a strong solution of carbolic acid. The ulcer turns white, and in a few days is completely healed.

DISEASES PECULIAR
TO
MODERN TIMES.

DISEASES PECULIAR TO MODERN TIMES.

IN so short a space as we have at our command the mere outlining of this chapter is all that can be expected; whole volumes might be written, and that, too, much to the reader's profit and interest.

Within the last fifty years diseases have assumed different aspects, while many actually new or heretofore unrecognized diseases swell the list of ailments. The "diathesis" of disease is the type of constitution inherited from the parents. From time immemorial, almost, there have been recognized five such types: the strumous, the nervous, the bilious, the lymphatic, and the gouty. Diseases of modern times tend greatly to the nervous type; not only this, but individual characteristics are at times so pronounced as to form what are professionally known as "idiosyncrasies." These idiosyncrasies continually increase, — so much so that what may be "food for one is poison to another." The causes of this change of tendency in disease are most numerous and especially noticeable in young countries.

Born of busy, hard-working parents, whose lot in life has been to struggle hard in new lands, or cast among neighbors whose life has been one of hurry and excitement, the child receives a nervous impetus at an early age, and his precociousness is considered to be due to an inheritance of unusual mental strength rather than to an overstrained nervous system of the parents and a consequent nerve-debility of the child. The child's early training is a rapid one, and at the early age of five or six the youth begins a course of school instruction calculated to make a man or woman within a given time. The already frail nervous system is overtaxed; when he branches out into business life, he already shows signs of mental feebleness, which should be the concomitant of long years of hard labor only. Society, too, claims so much of young people as unfits them for anything else but its own exactions. Too long waking hours and too short sleeping hours waste the surplus energy and call on the nervous system to whip up the tired body. The wear and tear of business life, with its constantly increasing complications and confinement to indoor work, only add to the strain induced at dentition and puberty. In modern times, when every business in rapidly growing towns and cities is being more and more "cut up," and when, consequently, greater

struggling for existence occurs, greater speed and anxiety, and more frequent disappointments are necessarily incurred. We rush through life nowadays. Advancing civilization is the cause of much of this extra speed. The press, telegraph, telephone, and steam appliances enable us to live faster, know and see more in a given time than ever before. The temptation is too great, and we rush on, regardless of tired bodies and exhausted brains, of overtaxed stomachs and sleepless nights, to keep up with the times. Climates which are dry, with extremes of heat and cold, also cause much waste of nerve-force. The upbuilding of a new country has much to do with our diseases. At present the West exhibits that feverish eagerness for success in life once exhibited in the East. Europe has passed that stage of barometrical change in disease, due to advancing civilization, while the United States is passing through it. The faults of Europe lie in the direction of pleasure-excesses; ours is an overworked nervous system. Our American liberty, and freedom of personal ambition to rise from the lowest station in life to the highest, from poverty to riches, and from ignorance to intelligence and honor, will always act as an excitant to the nervous system, and is the one cause of our excessive activity. We must hurry less; give more time for Dame Nature to repair the waste of the system and to store up potential energy. We must divide more evenly our periods of sleep, recreation, and work, that our children may become the possessors of more vital energy. We neglect too much old-fashioned methods of strengthening our bodies, as outdoor gymnastics and walks. Even our sports tinge too much of speed and undue excitement, and partake too much of "professional" knowledge. Let us have fewer "finely-cut" men, and more robust ones.

Thus it is we inherit a greater diathesis to nerve diseases. This diathesis means a greater susceptibility to stimulants and narcotics, social evils and greater risks. The changes peculiar to this diathesis, or those much increased by it, are the early and rapid decay of teeth, neuralgia, premature baldness, and hay fever; nervous dyspepsia, sick headaches, short-sightedness, St. Vitus's dance, sleeplessness, hypochondria, hysteria; cerebral, spinal, digestive, and sexual excesses; inebriety, epilepsy and insanity.

The first signs of ascension or declension in the health of a nation are seen in woman. The American woman of to-day offers a striking contrast to the original female inhabitant of this continent. The difference in the mental, moral, and social types may be well worth the cost, but we have sacrificed too much of the physical and nervous strength to have gained the most out of our three hundred years or so of existence. Womb troubles are almost the birthright of every woman,—so much so that necessity has developed in America a science for their relief, in a short space of time, as wonderful as the telegraph or telephone. The physician of to-day feels he must have at least a knowledge of gynæcology, whatever else he may or may not know.

The terms nervous exhaustion, nervous prostration, neurasthenia, etc., are of modern invention. Ancients knew little of the continual noises of factories and teams, electric and steam appliances; their wearied bodies were lulled to sleep by gentle sighing of the trees, and refreshed by sweet air. The evident cure for these increasing evils lies in a change in our national habits. We must cultivate the restful out-door recreation of the Indians; we must go through life more slowly, eat less rapidly, and sleep longer. Cultivate the desire to enjoy nature and art more. Do business only in business hours and on business days. Indulge more in cool baths, rides, walks, and natural sports. Learn to do less in amount, but better in quality.

OLD AGE and ITS DISEASES

To preserve the health is wise. The great advance in medicine during the last decade, together with the better understanding of sanitary laws, eliminates the dread of old age and renders it a joy and a blessing.

OLD AGE AND ITS DISEASES.

LIFE, like the natural day, has its morning, its noon, and its evening. Each period has its sunshine and its clouds; its light and its darkness; its fair weather and its storms; its joys and its sorrows. The old do not feel the exhilarating brightness of the morning of life, nor the fervid strength of its noon; but they often experience what is better: a calm, quiet stillness, and peaceful repose, in its evening.

There is, perhaps, no one thing—certainly not many things—which impress the reflective mind and tender heart with more sadness, than to see an old man, bending low with years, with little or no self-restraint; the passions all untamed, except so far as age has quenched their fires; fretful, peevish, jealous, complaining; distrustful of the ways of Providence; doubting the integrity of any human being; surrounded by clouds and darkness; and stepping down gradually and reluctantly, amid a cold, drizzly, sleety, moral rain, into a dark, uncheered, and unilluminated grave.

On the other hand, how unspeakably pleasant it is to see the silver-haired pilgrim, in the evening-time of life, cheerful, happy, trustful in God and hopeful of men; the winds and storms of life bringing little or no disturbance of his peace; baring the head reverently and bowing it meekly in the presence of great afflictions, and lifting it up rejoicingly when blessings fall upon it; converting, by the soft, subdued, and beautiful sunshine which he spreads around him, the very unpromising elements of the latest autumn into the finest Indian summer of life; and finally sinking down peacefully to his rest amid the golden evening sunlight, and leaving the sky, long after, tinted with colorings more beautiful than artists ever conceived.

“Why weep ye, then, for him who, having won
The bound of man’s appointed years, at last, —
Life’s blessings all enjoyed, life’s labors done, —
Serenely to his final rest has passed :
While the soft memory of his virtues yet
Lingers like twilight hues when the bright sun is set ?”

Besides these general reflections, it is proper in this chapter to contemplate the old from several points of view.

They are experienced persons, and we may learn much from them. To be sure, they have, in most cases, lost the acuteness of their senses. They do not hear, or see, or taste as sharply as the young,

or even always think as quickly; yet their judgments are founded on a large experience; their decisions, though not as prompt, or emphatic, or brilliant as those of younger persons, are more safe and reliable. They are worthy, therefore, of our respectful confidence. We may seek their counsel and advice, and in most cases follow it with safety. True, they are apt to be conservative, and to distrust new things and ideas; but these new things and ideas are matters in which they have had no experience — matters which belong to an age subsequent to their time — matters, therefore, which lie outside the sweep of their active life, and respecting which they should not be expected to judge. It is no disparagement to them to say that they are not fitted to judge of those new thoughts and discoveries which have swarmed upon the world since the sun of their life has been sinking low in the western sky. But in all those staple maxims and ideas which underlie human duties, in all ages, the old may safely be taken as our counsellors.

Depositories of Family History. — They are the frail depositories and keepers of a vast deal of valuable family history, anecdote, and reminiscences of events fast fading from human recollection. Few errors of my own early life have been so much regretted by me as the neglect to learn from my aged relatives, when I had the opportunity, some of the more important points in the history of my family. My grandfather, Col. Gideon Warren, — a first cousin of Gen. Joseph Warren, and a personal friend of Ethan Allen, — lived in some of the towns of southern Vermont, and finally spent his last days and died in Hampton, N.Y. There stands his tombstone to this day, with the following beautiful words from Young's "Night Thoughts" engraved upon it: —

"An angel's arm can't snatch me from the grave;
Legions of angels can't confine me there."

These few facts are about the substance of what I know of his history. In what town his father settled, who was one of three brothers who emigrated to this country, or who were his brothers and sisters, or what became of them, I have not been informed, simply because I did not obtain the information, now so much desired by me, as I might easily have done, between thirty and forty years ago, while spending a year in Hampton fitting for college. An uncle of mine, Caleb Warren, was then living in Hampton, an old man. He had learned from my grandfather the full history of the family; and from him I might have derived knowledge which I should now value above price — knowledge which I intend yet to acquire, if the pressure of professional business shall ever be so lifted from me that I can command time for the investigation. But I shall never cease to remember the fact, or to lament my misimprovement of it, that from this venerable relative I might have learned facts and put them on record in one hour, which it will cost me weeks and months of correspondence, travel, and the searching of records to acquire. I say

to all young persons, value very highly the knowledge of your family history, which you may easily learn from your parents, grandparents, uncles, aunts, etc., and esteem those very highly who are able to impart it to you. Soon these living records will be suddenly blotted by the hand of death; and then no regret for past negligence will enable you to repair your loss, if you have not improved your opportunity.

The Fathers of our Race and the Founders of our Institutions. —

The aged people who yet linger among us are our fathers. We have our existence, through God, from them, and from others who have preceded them to the silent land. They educated the present race. All that is valuable in the moral principle and mental culture of the men and women of this generation, has been derived from them. Much of their lives was spent in training us, mentally and morally, and fitting us for usefulness.

Not only the fine moral and intellectual characters which are found everywhere, acting like salt and leaven in human society, are the work of their hands; but society, and government itself, have been handed down to us by them, with much valuable instruction as to the means of their preservation. We can scarcely conceive the amount of obligation our fathers have laid upon us in giving us these vast blessings. The men who have been the means of bringing us into life; who have educated and trained us; who have preserved our government and passed it into our hands unbroken; who have built and enlarged our colleges, established and improved our unequalled common schools; have founded and endowed our charitable institutions, and thus made our land famous throughout the world, are certainly worthy — those of them who are yet among us — of our constant regard and veneration.

Loneliness of the Aged. — The old are left, in some sense, alone in the world. The age in which they have had their active being has gone by. The world has slid from under them; and they stand far out, as it were, on a narrow neck of land between this world and the next, from which they hear strange sounds coming to them from the moving mass of beings of whom they are soon to take leave. Most of the companions with whom they started in the journey of life have, one by one, dropped away from their side, and the younger and stirring multitude who have come after them are moved by new, and to them strange thoughts and aspirations. The throng of younger men is driven forward by impulses which they never felt, and in paths which they never trod. Manners, speech, dress, modes of doing business — all have changed. The old-fashioned fire-place, the stage-coach, the boy's bow and the girl's courtesy to strangers in the street, these all — some of them useful and some of no further value — have disappeared, never more to be enjoyed by those who so much prized them in their day.

What wonder if at times a sense of loneliness and desolation should steal into the minds of the aged? It is not without cause that they often yield to melancholy reflections. The young have their companions and their sports. The companions of the old have mostly gone; and for sports they have no agility. Cut off from the present, they are thrown upon the past, and too often look gloomily to the future. They should be sympathized with and encouraged. We should sit by their side, and talk with them of the manners and events of other days. Their conversation is often instructive as well as amusing. Would we engage in it with right feelings towards the old, it would be to us a source both of profit and pleasure. To a right-minded person, few things are more pleasurable than to sit by intelligent aged persons, cozily seated in a large arm-chair, and listen to their tales of personal adventure and experience. They enter upon such narratives with so much animation, and live over the past with such evident satisfaction, that the benevolent person would find pleasure in engaging them in that conversation for this reason alone.

Helpless Dependence of the Aged.—No one thing should tend more to excite our pity, compassion, and kindly feelings for old people, than their helplessness and dependence. It is one of the best indications of humanity to deal gently with the weak. The old are in their second childhood. In their day, they have been strong and vigorous—laboring, many of them, in season and out of season, to support their families and gain a competence. They have felled the primitive forests, and brought the soil under the dominion of the plough and hoe; they have constructed turnpikes and built bridges; made ships and sailed them over stormy seas, whitened every harbor with the emblems of commerce; filled every city with the beautiful creations of art, and the useful productions of mechanical handicraft; created systems of education and philanthropy; framed strong governments and worked them,—in a word, have carried the world upon their shoulders, without bending or giving tokens of exhaustion. But a multitude of years have robbed them of the strength which did all these things. They now totter like a young child. The brain which conceived and the arm which executed are alike feeble. How proper that much which is kindly should now be done for those who have done so much for us and for the world! Oh, let the old have a warm place in the affections! Supply, as far as possible, all their wants. Go with them, in spirit, into the shadows of evening, within which they are retiring, and there hold them up. Be a staff to them in their weakness; and, if it be possible, when the shades deepen around them, lift the curtains of the future and let in upon them, though it be never so few, some rays of light from the heavenly world.

From these general remarks, I pass to consider —

The Changes occurring in Advanced Life.

GROWTH, maturity, and decline are the three periods which divide and measure human life.

During growth, the deposit of new matter takes place more rapidly than the decay or waste which is also going on.

During healthy maturity, waste and increase are exactly equal, the one taking place just as rapidly as the other.

The decline of old age reverses the order of growth, and waste outstrips addition. The newly deposited matter comes, but not so rapidly as the old is cast away.

Declining Age may be said to extend from fifty to sixty.

Incipient Old Age from sixty to seventy.

Ripe Old Age from seventy to eighty.

Decrepitude or Second Infancy from eighty to the end of life.

During all these periods, particularly during the latter, important structural and other changes are occurring in the human system. Piles, apoplexy, paralysis, diseases of the liver, kidneys, and bladder, with organic changes of the heart, dropsy, chronic affections of the breathing organs, gout, etc., frequently appear.

No fear of Death. — It is a wise and merciful provision of Providence, that as old age advances, and the natural end of life draws near, the dread of death diminishes. As the aged gradually lose their hold upon life, they do so with less and less reluctance, until finally they let go willingly, and part from it even with joy. Persons passing from life at the age of eighty or upwards, generally look forward to death with more of pleasure than of fear. It is one good reason why it is desirable to live to great age, that life may come to a close without those harassing fears which so many dread.

Preservation of Old People's Health.

It is proper here to speak of the *hygiene* of old age, or the means of *preserving* aged people's health.

It is natural to desire a continuance of life; and except in the case of the extremely old, there is a general wish for its prolongation. Those who are born of parents who have lived long, are more likely to attain length of days than those who have descended from short-lived ancestors; yet the influence of correct habits may add quite as many years to their lives.

Regular Habits. — The old feel the evil influence of irregular habits much more than the young. It is seldom that any *change* of habit, long indulged, is well borne by the aged. So true is this, that the attempt to correct some habits of evil tendency is sometimes

dangerous to the old, so much have they lost the power of adapting themselves to change. The discontinuance of the habitual use of spirit, or tobacco, or opium, by an old person, though the use of either is of acknowledged evil tendency, will frequently prove fatal. It is almost necessary that the habits of the aged should remain as they are. What an impressive lesson this fact gives the young on the necessity of forming good habits in early life!

Even the hours of taking meals should not be changed in the decline of life. Removing to new climates, and forming new social relations by those advanced in years, is not favorable to length of days. Old trees do not often take root and live long when transferred to a new soil.

Diet. — The food of old people should of course be easy of digestion. It is often the case that they bear made dishes such as “hash,” so called, better than plain boiled or roasted meat. This can only be explained on the ground that the meat is chopped fine, and is more thoroughly cooked.

Mode of Cooking Meats. — This leads me to speak of the best methods of cooking meats so that they may be tender.

The flesh of all warm-blooded animals is identical in composition with that of human beings. That the flesh of animals used as food, therefore, may form flesh in the human body in the easiest manner, none of its essential constituents or parts should be taken from it during the process of cooking. If any one of its constituents is extracted, it will no longer be *like* human flesh; and that lost part will have to be resupplied before it can become a part of the frame of man.

Flesh is composed of two parts—that which can be dissolved, and that which cannot. The separation between these two parts is more or less completely effected in boiling, according to the amount of water used and the length of time employed in the process.

In making soup, we have no objection to a separation between the hard and juicy parts of the meat, because the latter passes into the water and helps form the soup. Hence the proper way is to put the meat into cold water when it is put over the fire, and let it come to the boiling point very gradually; during which time the juicy part has a chance to dissolve out, and, uniting with the water, make rich soup.

But when the meat is to be boiled simply, and eaten as boiled meat, we should aim to retain the juice within it, that we may retain the whole of it. To do this, we must put the meat into water which is briskly boiling over the fire. The juice of the meat contains a large quantity of *albumen*, a substance just like the white of egg; and putting the meat suddenly into boiling water almost instantly hardens this albumen all around the surface, just as boiling water hardens white of egg, and this prevents all the juice of the inner portion of

the meat from running out into the water and being lost. Keep the meat in the briskly-boiling water a few minutes, then pour in a little cold water to reduce the temperature slightly, and keep it in this somewhat reduced temperature until it is done through.

Broiling and roasting are pretty generally understood, and are done well enough where persons are disposed to take pains. Frying is an abomination, and should be banished from all civilized households.

Milk is an excellent article of diet for old persons. Except in some few cases where it disagrees with the stomach, it is among the very best. Sometimes, when it disagrees with a weak stomach, a little lime-water added to it will make all right. Artificial ass's milk, which will generally sit well on aged people's stomachs, may be made by dissolving one ounce of pulverized sugar of milk in one pint of skimmed cow's milk.

Potatoes, beets, carrots, parsnips, and asparagus are healthful; peas, beans, cabbages, etc., had better not be largely indulged in.

Ripe Fruits, taken in moderation, are useful; but should be eaten at meal-time, not between meals. Among these, ripe apples, pears, peaches, plums, strawberries, currants, and grapes are luxuries in which not even the oldest persons need fear to indulge to a reasonable extent.

Plain Puddings and Pies are not entirely objectionable; but all rich and high-seasoned articles of pastry should be strictly rejected by the old, as they should, in fact, by all classes.

Wine, etc. — If any persons in the world may indulge in a little wine for their stomach's sake, it is the old. But even they, if they have not been accustomed to its use, often get along very well without it; and when they can do so it is better, for various reasons, especially that their example may have a good influence with others. When the feeble vitality of the aged seems to require it, especially if they have been in the habit of leaning upon it, they should be encouraged to use it. And if they chance to be poor, and cannot procure it themselves, for friends to withhold it from them on the ground of economy, or from the feeling of grudging stinginess, is nothing less than inhumanity and cruelty.

To these remarks upon diet, I add: the old should never eat to excess or repletion. They should eat slowly, and chew their food very thoroughly.

Susceptibility to Cold. — Aged people suffer very much from cold hands and feet, and, indeed, from languid circulation and low temperature generally. The heart, like all their other muscles, has become feeble, and sends the blood very lazily along the arteries. The clothing of the old should be thicker and warmer than that of younger people. We must prevent the escape of what little animal

heat there is by flannel worn next to the skin, and by woollen clothes generally — they being bad conductors of heat. Unless very fleshy, they seldom suffer from heat, even when their flannels are continued through the summer.

It is during winter nights that the old are apt to suffer most from cold. On going to bed, therefore, they should be warm; and on very cold nights should have a hot-water bag at their feet. The communication of animal heat, particularly from the young, is better even than this to support the vital energies of age; and some writers have recommended that the vital warmth of the old should be kept up by letting the young of our own species sleep with them. The humanity of this suggestion is very questionable. The aged would doubtless be benefited by such a proceeding; but the young would be injured. Whatever vitality should be gained by one would be lost by the other. While a few might be added to the limited days of the aged, many would be quite as likely to be subtracted from those of the young. I would much sooner recommend that old people attach to themselves, and take to their bed, an affectionate, clean, and silken-haired English terrier dog. Such an animal, usually as clean as a child, would impart warmth and vitality at night, and be a true, affectionate, and amusing companion during many a lonely hour of the day. Whatever may be said against this recommendation, — and of course some over-nice people will object, — I insist that it is in every sense far more proper than the expedient adopted with King David, when he “was old and stricken in years,” and after “they covered him with clothes, but he gat no heat.” (1 Kings i, 1.)

Mortality in Cold Weather. — Far more of the old people die in winter than in summer, or, indeed, in any other season. For this reason, old people should be very careful how they expose themselves during the coldest days of the winter.

If there be any change which the old are likely to bear with impunity or advantage, it is from a cold to a warm climate in their latter years. The wealthy Romans, when they grew old, were taken to Naples.

Care of the Skin. — Attention to the skin, always important to health, is very essentially so in the latter years of life. The scarf-skin of the old tends to become dry, and peel off. This may be prevented in a great measure by regular washing with tepid water, and rubbing. If the bath cannot be endured, not even the sponge-bath, let friction alone be employed. For friction, either the naked hand, a piece of flannel, or the flesh-brush may be used. In rubbing the belly, the hand should follow the course of the large bowel; that is, in the region of the stomach pass across from right to left, down on the left, across on the lower parts of the bowels, up on the right, etc. By this method, constipation and a windy condition of the stomach and bowels may frequently be removed, or rendered less distressing.

Exercise. — Always important, in all periods of life, exercise does not lose its advantages in old age. But the aged should always exercise with moderation. The violence used in youth would break the bones, and do various kinds of mischief were it indulged by the old. Carriage exercise is very suitable for old people, but the more active exercise of horseback riding, walking, and even working in the garden, should not be omitted — bearing always in mind that great fatigue is injurious.

Sleep. — Aged people should get about as much sleep as nature asks for. They should retire early, and not be in haste to rise with the dawn. They require more sleep than persons in middle life. Eight or ten hours in the twenty-four is not too much.

Sleeplessness. — Though the old require a good deal of sleep, it is unfortunate that many of them can sleep but little. A large proportion of persons far advanced in life, complain of inability to sleep. Many old people deceive themselves, and really sleep much more than they are aware. Yet they often persist that they sleep none at all, night after night. Their case is illustrated by an old lady whose doctor entered her room and found her sleeping very soundly and comfortably. The noise of a person entering the room awoke her soon after, when, rubbing her eyes, she turned to the doctor, and said all she wanted was sleep, that she had slept none for a month; and unless he could give her something to bring sleep, she must die.

Medical art, I am sorry to say, frequently fails to bring relief, when there is real want of sleep. Narcotics should always be avoided if possible. They do too much mischief; yet it is necessary, sometimes, to resort to them. Much may be done sometimes by taking an earlier or a lighter supper. Early rising, and exercise in the open air, will often bring sleep at night. Occasionally a glass of wine, or a little spirit of any kind, taken just before retiring, will bring the needed sleep.

Electricity. — In connection with sleep, the disturbing and the tranquilizing influence of electricity and magnetism has received some attention within a few years. A German philosopher contends that terrestrial magnetism exerts on persons of a sensitive organization a very soothing influence, when placed in proper relations with its currents, and a disturbing impression when otherwise situated. He cites cases to show that lying from east to west is so intolerable that persons of delicacy cannot endure it; while the horizontal position from north to south, with the head south, is *more* agreeable; and *most* agreeable and tranquilizing with the head to the north. A German surgeon is mentioned in Reichenback's Memoirs, who always woke early in the morning, and turning his head where his feet had been, invariably fell into a sound slumber, which was more refreshing than that of the night. When he chanced to omit this, he felt ill all day. Observing that the head of his bed was directed to the south, Reich-

enback persuaded him to turn it to the north; and ever after he slept soundly till the proper time to rise in the morning.

Without pronouncing upon the correctness of this theory, I will simply say that in my winter residence in town, the head of my bed is to the south. I sleep *tolerably* well; but *not* as well as at my summer residence a little out of town, where the head of my bed is towards the north. How much the stillness of the country and the greater purity of its atmosphere may contribute to this difference, I will not pretend to decide.

Medical Treatment of the Old.

IN prescribing medicine for old people, we should bear in mind the difference between the sexes. Women in advanced life are less excitable, and enjoy better health, frequently, than in early life. Old men, on the contrary, are more nervous, in their latter years, and consequently more easily affected.

The physician cannot rely on the *reaction* of the system in old age. He must do more by his remedies, and depend less upon nature to help him out of straits.

The small power of rallying in the systems of the old, puts all blood-letting, severe purging, etc., entirely out of the question. The man is near enough to insanity who, except in some very *rare* case, bleeds the young. He who takes a drop of blood from the old, should be put in a straight-jacket and sent to the insane hospital.

Larger Doses. — The torpid condition of the system in old age frequently requires larger doses of medicine to make an impression.

Fluid Medicines. — Pills and powders sometimes pass through the stomach and bowels in the same state in which they entered. Fluids are more readily appropriated — especially when the more active medicinal ingredient is mixed with wine, or some stimulating tincture, or aromatic water. These things rouse up the torpid stomach and bowels, and cause the medicine to take effect.

Medicine by Rectum. — When the disease is situated in the immediate neighborhood of the lower bowel, as the bladder, etc., it is sometimes better to administer the medicine by injection into the rectum.

Suitable Medicines for the Old. — The acids, the alkalies, and the neutral salts are unsuitable to be administered much to old people. All metallic medicines must be given sparingly, and with caution. Iodine and iodide of potassium are not very well borne. Narcotics must sometimes be used to some extent. Harsh and drastic purgatives are out of the question, except in some few instances in which they may be given sparingly in connection with compound tincture of gentian, or some other stimulating tonic. Sulphur is a valuable

remedy for aged people. So are the stimulant tonics, bitters, astringents, gum-resins, balsams, etc., together with the various carminatives, as anise, coriander, fennel, cascarilla, ginger, etc.

Surgical Operations. — Some of the smaller operations in surgery need not be forbidden in the case of the old; but great operations are not to be thought of. There is not recuperative power enough to bear them.

Diseases of the Old.

MOST of the diseases which afflict aged people are of course much the same as those which come upon people at all periods of life. These having all been treated of in the previous pages of this book, do not require to be gone over particularly again. There are a few complaints, however, which are peculiar to the old, of which I must briefly speak.

Bronchial Flux. — *Bronchorrhœa*.

A MORE than usual amount of mucous expectoration, accompanied with cough, is very common with old people — so common that in many cases they think very little of it, even when the expectoration becomes very profuse. This discharge, however, from the mucous surface of the bronchial tubes, is very apt to be attended by shortness of breath on making even very slight exertion; and the whole trouble is aggravated in damp weather, and by constipation, and the stoppage of leucorrhœa in females, or the interruption of insensible perspiration through the skin.

Slow progress. — This complaint makes very slow progress, as a general rule, often continuing many years without doing any great mischief. It is apt, however, to degenerate into a mischievous condition in the end; and should, therefore, as a general thing, receive some attention.

Treatment. — Attend carefully to the skin. Keep it in as healthy a condition as possible, by regular and faithful bathing and friction. This is of prime importance.

Care must be had not to suppress the discharge too suddenly. It may be necessary, at times, to use some expectorant (see expectorants among the prescriptions) to make the raising easier. But when it is thoroughly loosened up, we should begin to suppress it by astringent inhalations. For this purpose Inhalant No. 4 is excellent. It might be well, however, to begin with the Inhalant No. 6, which is slightly styptic.

If ulcers on the legs have recently healed, they should be opened, or blisters applied in their vicinity.

Removal to a *dry* climate is a valuable remedy, provided the climate is not too hot, and is healthful in every other respect.

Other Diseases. — The other diseases with which old persons are afflicted are so common to all ages, that I do little more than name them, adding a few general remarks.

Asthma. — The asthma, or intermittent difficulty of breathing of the old, is connected with various other troubles, as chronic inflammation of the bronchial tubes, air in the lung-tissue, swelling of the lungs, enlargement and dilatation of the heart, and diseases of its valves, etc. It is also dependent on impurities of the blood, and is connected with torpid action of the kidneys. It is impossible, sometimes, to say which of these conditions it is dependent upon. As far as may be, however, the cause must be searched out; and then, while the general remedies for asthma must be employed, the particular thing with which it is connected must also receive attention, especially if it be connected with derangement of the kidneys.

Asthmatic old people are almost always dyspeptics. The stomach and bowels, therefore, require particular attention. The warm purgatives, combined with alkalies, are generally useful: as rhubarb and soda, equal parts, or Mettauer's Aperient, with a little tincture of ginger or tincture of cayenne in it. A very valuable preparation is compound tincture of gentian and tincture of calumba, two ounces each, one-half ounce of tincture of ginger, and half an ounce of bicarbonate of soda. Mix, and take a teaspoonful as occasion may require.

Apoplexy and Paralysis. — The nervous system being weakened in aged people, the way is opened for greater frequency of attack from apoplexy and paralysis. The exciting cause may be hyperæmia, too much blood; or anæmia, too little blood. It may be general debility, or gout, or a poisoned state of the blood.

The treatment is to be conducted much on the same principles as when these diseases occur in younger subjects.

I pass over numerous complaints which may be said to be somewhat more common in advanced life than at earlier periods. They are so fully treated in previous pages of this book, that it is deemed needless even to name them here. There is, however, one other class of diseases occurring so very often in old age, and in so many cases making advanced life a burden, that I cannot pass them wholly in silence. I refer to

Diseases of the Urinary Organs. — These afflict the old, not only very commonly, but very severely. A man who reaches the age of seventy or eighty without experiencing some serious trouble from deranged kidneys, diseased bladder or prostate gland, or gall-stones, or gravel, or unhealthy urinary deposits of some sort, may think himself greatly favored.

Treatment. — It is not necessary here to go over the whole ground of treatment. That is done in other parts of the book. I will say,

however, that a surgical operation for stone in the bladder is not often to be thought of in the case of old people. Other remedies must be sought. And among these, none hold out so good a chance of relief as the free drinking of the alkaline bicarbonates dissolved in water. This will frequently dissolve stones formed of uric acid, urate of ammonia, and triple phosphates. Poland water in large quantities is good.

ACCIDENTS

What to do and How to do it

ACCIDENTS.

Apparent Death from Noxious Vapors.

WHEN persons become insensible from breathing foul air in a deep well or other place where it collects, let them be immediately exposed to the open air, cold water be sprinkled upon the face and head, and strong vinegar be rubbed about the nostrils. As soon as there is ability to swallow, give some drinks, as lemonade, or a few drops of aromatic sulphuric acid, dropped into a tumblerful of water, and slightly sweetened. A stimulating injection (246) may be given.

Apparent Death from Burning Charcoal.

SOME persons very thoughtlessly attempt to warm their sleeping or sitting rooms with a portable furnace, or open pan filled with burning charcoal, or live coals from a wood fire. This is very wrong, as such coals while burning throw off large quantities of carbonic acid gas, a deadly poison. This being heavier than atmospheric air, falls to the bottom of the room, and for a time may do no damage ; but, if there be no chimney-draught, or open door or window, it will rise above the heads of those in the room, and bring on asphyxia and death.

Let such cases be treated the same as the preceding, with the additional measure of attempting to excite breathing, as in the case of persons apparently dead from drowning.

To Recover Persons Apparently Drowned.

OF all the sad accidents that may often be avoided by a knowledge of their prevention, drowning seems the most lamentable. Its occurrence, too, is the most frequent. A knowledge, then, of how to restore the drowning to life, and to renew the suspended animation, is equally important to people as a knowledge of how to swim.

Drowning persons die by what is called *asphyxia*. The air being shut off from the lungs, breathing stops, and the immediate accumulation of carbonic acid in the blood paralyzes the nervous system, and insensibility immediately follows. The heart continues to beat, however, from five to twenty minutes after the occurrence of insensibility and apparent death.

Recovery *may* take place at any time before the heart ceases to beat, and has been brought about in some cases even after this organ has become still. It has taken place, in some few instances, as late as an hour after being under water, but it can scarcely be expected, even under the best treatment, later than twenty minutes from the time of submersion; and even as late as this, the chances are much against restoration.

Several main facts should never be lost sight of: remember, first, to empty the water out of the person's stomach and lungs; second, to remove the patient as little away from the spot where rescued as possible; third, to go to work at once, unless the atmosphere of winter prevent; remember, finally, to keep at work long after hope seems gone, to many, of restoring the person to life.



FIG. 150.

Roll the patient over on to his stomach, with a parcel of clothing (see Fig. 150), a barrel or box under him, and press firmly on his back, while an assistant pulls forward the tongue and clears the mouth of mucus. Repeat the pressure once or twice, and then roll the patient on to his back (Fig. 151) with the clothes rolled up resting under his lowest ribs. Loosen all clothing about the neck, chest, and waist.

Let the assistant extend the arms in the direction of the body above the head, bringing them as near together as possible, while you blow into the patient's mouth. Now, straddling the body, replace the arms and press firmly with your own weight upon the sides and front of the lower chest, as if to press out something from

the lungs; suddenly let go. Repeat these motions of the arms and chest perseveringly, ten or fifteen times a minute.

While thus engaged, assistants should remove the wet clothing, wipe the body dry, and, by vigorous friction of the skin, endeavor to restore warmth to the surface. Hot-water bottles, if they can be procured, are very serviceable in securing this result. Neither the weather nor place may allow of this warmth. When, however, the asphyxia has been relieved, warmth should be abundantly supplied and light stimulants given. Avoid the warm bath. Rubbing with coarse cloths answers well in the absence of hot-water bottles.



FIG. 151.

As soon as the patient can swallow, give warm milk, beef tea, or coffee with a tablespoonful of some spirit. Volatile stimulants like ammonia, held before the nose, are very serviceable, even before the patient breathes.

Sleep should now be encouraged, but a watch must be kept, in cases of prolonged asphyxia, lest a relapse occur.

How long a person may be under water and yet recover, is not definitely known, although the duration depends on the amount of air confined in the chest just prior to the immersion.

Unless you are well acquainted with heart or lung action, you may be deceived as to the existence of life; persevere, therefore, in the worst cases, fully an hour, since the heart may beat so feebly as to escape your notice, and yet, finally, rally.

It is doubtful if a heart that has actually stopped for five minutes can be resuscitated.

Apparent Death from Lightning.

A STROKE of lightning will frequently produce asphyxia by paralyzing the muscles of respiration. In such case, the same means for recovery should be used as in apparent death from drowning. Or, the apparently dead person may be placed in a current of fresh air, and cold water dashed upon the face, neck, and breast, and warm friction be applied if the body is cold.

Apparent Death from Hanging.

PERSONS found hanging, who have committed suicide, are to be cut down instantly, and the same means employed to re-establish breathing as in cases of drowning. It may help to restore the breathing, to bathe the forehead and face with vinegar, or tincture of camphor, and to pass hartshorn frequently under the nostrils.

Clothes Catching Fire.

IT is perhaps unreasonable to look for presence of mind when this frightful accident occurs, yet it is never more needed than at such a time.

The instant a lady perceives her clothes to be on fire, and *in a blaze*, she should seize the nearest large rug, cloak, blanket, coverlet, or any equivalent article, and, wrapping it *tight* around her, throw herself flat upon the floor, taking care to keep the protecting covering *close* to her until the fire is completely smothered. If she does this with energy, and effectually, she will put out the fire instantly.

If she continue on her feet, the blaze will rapidly ascend, and burn her vital parts. If she *run* to seek relief from others not present, the motion of the air will fan the flame into a swifter work of destruction.

If it be a child that is on fire, let any person present treat it as above. If it be badly burned before the fire is extinguished, put it instantly into a tub of cold water, or dash cold water upon it, to prevent the burn from becoming deep.

Accidents on the Water.

IF upset in a boat, or otherwise thrown into the water, and not able to swim, draw the breath in well, and keep the mouth shut tight. Do not struggle and throw the arms up; but yield quietly to the water, hold the head well up, and stretch out the hands only *below* the water. To throw the hands or the feet *up*, will pitch the head *down*, and cause the whole person to go immediately under water. Keep the *head above*, and everything else *under* water.

Poisoning Accidents. — Antidotes of Poisons.

ACCIDENTS from poisons are of such common occurrence, that every person should know the proper remedies, and not be obliged to wait the arrival of a physician before the proper corrective is applied. The most common remedies, with the methods of applying them, will be given under the proper heads below.

Poisons may be classified under two heads: viz., mineral and vegetable.

In the treatment, three objects are to be kept in view: first, to get rid of the poison; second, to stop its action; and third, to avert its tendency to death.

The first indication is accomplished by the administration of emetics to cause vomiting, or by the use of a stomach pump. The simplest way to provoke vomiting is to give large draughts of lukewarm water, and to thrust a finger down the throat.

The term stomach pump was formerly given to a rubber tube which had a bulb about two feet from the end that was passed through the mouth and down the esophagus into the stomach. This had a syringe-like action and by suction drew the poison or other material out of the stomach. The term is now used for any tube which answers the same purpose, and any rubber tube three or four feet long with a diameter of one-half inch may be used with good results. The absence of the syringe bulb makes the use of a slightly long tube necessary, so that a siphon action can be attained by first closing one end of the tube and after filling with lukewarm water, the pointed end is passed into the stomach, usually requiring 18 inches of tube from the teeth. The longer end is then dropped toward the floor and the water will flow from the tube by a vacuum forming and removing the fluid from the stomach.

A teaspoonful or two of mustard in warm water is oftentimes an effectual emetic. Some of the emetics are ipecacuanha, tartar emetic, sulphate of zinc, and sulphate of copper. Sulphate of zinc in twenty-grain doses is about the best.

The second indication is to use an antidote. The third indication is fulfilled by palliating the symptoms, and neutralizing the after-effects on the constitution.

After copious vomiting, soothing liquids should be given, such as oil, milk, beaten-up raw eggs. These are useful when the poison has been of an irritating character.

If the patient be much depressed in mind or body, the hands and feet cold, the lips blue, the face pale, a cold perspiration on the forehead and about the mouth, some stimulant may be administered. Strong, hot tea is the best, because it is a chemical antidote to many poisons. Strong coffee is a good stimulant. Brandy and other spirits are sometimes necessary. Sometimes when the powers of life are much depressed, artificial heat also is necessary.

Mineral Poisons.

Poisoning by Ammonia.

WATER of ammonia, or hartshorn, if taken in an undiluted state, acts as a violent poison.

When this accident happens, give *vinegar* instantly, mixed with a little water. Vinegar is an *acid*, and ammonia is an alkali; acids and alkalies neutralize each other.

Poisoning by Antimony.

TARTAR emetic, and wine of antimony, are sometimes taken by accident in large doses, so as to act as poisons, and cause dangerous vomiting and prostration.

Give a tea of slippery elm, flax-seed, marshmallow, etc.; also syrup of poppies, paregoric, or laudanum in twenty-drop doses. To neutralize the poison, give a strong solution of tannin, or an infusion of oak-bark, or nutgalls.

Poisoning by Arsenic.

USE the stomach-pump instantly, if one is to be had; if not, give twenty grains of sulphate of zinc (white vitriol) in a little warm water; and promote the vomiting by filling the stomach with large draughts of warm or cold milk, sweetened water, or flax-seed tea. Or, vomiting may be induced still more quickly, by giving a large tablespoonful of strong ground mustard, mixed with a teacupful of water.

But the best antidote for arsenic is hydrated sesquioxide of iron. Mix a tablespoonful of this with water, and give this amount every five or ten minutes, until half a dozen doses are taken.

Treat the inflammation of the stomach which follows, by blisters, a bland liquid diet, mucilaginous drinks, etc.

Poisoning by Verdigris, or Acetate of Copper.

COOKING utensils made of copper never ought to be tolerated; yet they are used; and it is from the verdigris which forms upon them that most of the cases of poisoning by copper happen.

Give an emetic instantly, and then two teaspoonfuls of carbonate of soda (baking soda) in a tumblerful of water, to be repeated in ten minutes. White of eggs diffused in water, and mucilaginous drinks, are proper.

Poisoning by Corrosive Sublimate.

THIS is the common bed-bug poison, and is often taken by mistake.

Mix up quickly the whites of a dozen eggs, with two pints of cold water, and give a glassful of the mixture every two minutes till the stomach can contain no more. If there are not eggs enough at hand, take what there are, and make up the deficiency with milk. Wheat

flour, mixed with water, is a good remedy. Use the stomach-pump, if it is at hand. Treat the resulting inflammation with leeches and fomentations.

Poisoning by Sugar of Lead, or Acetate of Lead.

GIVE a ground-mustard or a sulphate of zinc emetic; then give diluted sulphuric acid, or either epsom or glauber's salts.

Poisoning by Strong Lye.

STRONG lye is sometimes swallowed by children. The remedy is vinegar, or oil. Vinegar will convert the lye into acetate of potash, and any of the oils will unite with it and form soap; and neither the acetate of potash nor soap will materially injure the stomach.

Poisoning by Nitric, Muriatic, or Sulphuric Acid.

WHEN either one of these acids is swallowed, not a moment of time is to be lost. Fill the patient *full* of calcined magnesia stirred up in water. This is the best remedy; but if it is not to be had, give half an ounce of soap in a pint of water. If neither are at hand, give chalk, or whiting, in water, or even pound fine some of the plastering of the room, and give it in water.

Poisoning by Nitrate of Potash, called Nitre, or Saltpetre.

INDUCE vomiting by lukewarm water, and by tickling the throat with a feather; but avoid irritating the stomach with the ordinary emetics.

Poisoning by White Vitriol.

PROVOKE vomiting by warm drinks, and by tickling the throat, and give freely carbonate of soda, in water.

Poisoning by Oxalic Acid.

THIS resembles epsom salts, and is liable to be taken for salts by mistake. The two can always be distinguished by touching a little to the tongue. Epsom salts taste *bitter*; oxalic acid, *very sour*.

In cases of poison from oxalic acid, give magnesia in water as quickly as possible. When this is not at hand, give chalk, or lime, or saleratus. Use the stomach-pump, if it is to be had.

Vegetable and Other Poisons.

THE vegetable poisons are quite numerous, and many of them quite as virulent and rapid as any in the mineral kingdom.

Poisoning by Aconite.

GIVE an emetic of ground-mustard or sulphate of zinc, or use the stomach-pump instantly, and then give stimulants, as brandy, gin, whiskey, rum, etc.

Poisoning by Opium, Morphine, and Laudanum.

USE the stomach-pump, if at hand; if not, a powerful emetic of sulphate of zinc, or sulphate of copper; or, if these are not at hand, a tablespoonful of ground mustard in a teacupful of warm water. If vomiting is not induced at once, tickle the throat with a feather, or with the finger. If sleep is impending, take the patient into the open air, and keep him walking; dash water upon his face, etc. If he still falls into sleep, and appears to be near dying, apply means for artificial breathing as for persons apparently dead from drowning.

As a last resort the electric battery may be tried, as it has been the means of saving several persons who would have otherwise died. One sponge of the battery may be applied to the back of the neck and the other to the lower end of the breast bone. By the action of the battery on the phrenic nerve, a stimulus to respiration is caused, and involuntarily the patient may be made to breathe.

Poisoning from Belladonna, Hyoscyamus, Stramonium, and Conium.

THESE are all narcotics, and when accidentally taken in poisonous doses, the treatment is to be the same as for poisoning by opium. Strong coffee is said to counteract the effect of these articles.

Poisoning by Dogwood, Ivy, etc.

GIVE some of the salts as a cathartic, and apply to the skin a solution of sugar of lead, or still better, a decoction of witchhazel-bark or lime-water.

Poisoning by Prussic Acid.

THIS is the most deadly of all known poisons. One drop of the *pure acid* will cause immediate death. Give water of ammonia or hartshorn, one part diluted with six parts of water, freely.

Poisoning by Strychnine.

THE same treatment as for poisoning by opium, excepting that sweet milk should be freely administered. This has been recommended by one respectable physician, at least, who says he has found it to be a specific. Camphor, two ounces dissolved in a quart of whiskey, and given *freely*, is also said to be an antidote.

Poisoning by Spanish Flies.

GIVE large draughts of sweet oil, sugar and water, milk, or flax-seed tea. For the inflammation of the bladder which is produced by it, apply leeches, and a liniment composed of camphor and sweet oil. To relieve the strangury or scalding of the water, give camphor internally.

How to Lift and Transport the Sick or Injured.

KNEELING on both knees, turn the patient flat on his face and stomach, putting the arms straight by his sides, take hold close under each armpit, raise the body as high as possible in that position, allowing it to rest on one of your knees. (See Figure No. 1.)

With the patient's head on your chest shift your arm around his waist, interlock your fingers, lift the person to an upright position. (See Figure No. 2.)

Then take hold of the patient's right wrist with your left hand, bringing his right arm around your neck, place your head beneath his body and drop into stooping position. Then pass your right arm between or around the patient's leg or legs, bringing the patient's weight well to the centre of your back. (See Figure No. 3.)

Then grasp the patient's right wrist with your right hand, balancing his body on your shoulders, lift to the erect position. (See Figure No. 4.)

This is a very simple method and it would do well for every person to practice this, to be used in case of emergency.



Figure 1.



Figure 2.



Figure 3.



Figure 4.

SURGICAL DISEASES

SURGICAL DISEASES.

Modern Surgery.

To one educated in surgery a quarter of a century ago, the customs and theories of to-day must seem very odd, and the results of to-day's surgical science must seem truly miraculous. Formerly pus formation in a healing wound was regarded not only as unavoidable, but really beneficial. Pus, or matter, was known as *laudable* or good pus, and *diseased*, or bad pus. Wounds only occasionally healed by primary union or *first intention*, — that is to say, skin growing to skin and muscle to muscle as sewn, but they rather healed by a long, slow process of granulation attended with pus-formation, called *second intention*. The various surgical epidemics of contagious diseases were extremely common in the very best hospitals under the guidance of the very best men; they were thought unavoidable. Hospital gangrene, erysipelas, and the various forms of blood-poison diseases, were so common and spread so rapidly as often to render it necessary to close a hospital. Major operations were attended by a mortality that nowadays seems almost incredible. To amputate a leg, except under the most favorable circumstances, meant almost sure death. The late Dr. Pasteur of France first made known to the world that there were such things as germs, or microscopic life, capable of transmitting themselves and their spores almost endlessly. These germs were soon found to be the outcome of dirt and disease, and that possibly in their extermination lay a great future for surgery. It was Sir Joseph Lister, of England, who first discovered the fact that certain medicines, like carbolic acid, would kill these germs, and that in so doing wounds would unite by first intention in the majority of cases. This was the first great step toward the realization of the dreams of our forefathers.

The study of bacteriology was then commenced, and it has progressed rapidly ever since, till to-day it has become a marvelous science unfolding the life, nature and propagation of all sorts of bacteria.

We now know that on the living skin there exist normally certain germs whose function apparently is to use up the waste products of the economy, but which, when introduced into the flesh, produce most deleterious effects.

Germ-life is found everywhere, — on our hands and clothes, in the dust of the air and in the water we drink. So long as they keep to their natural abodes no mischief is done. It is this germ-life which causes wounds to suppurate, erysipelas, blood-poisoning and gangrene to occur. It is the annihilation of these germs about all wounds, and on all objects which come in contact with wounds, that distinguishes the *newer* from the *older* surgery. To-day the mortality figures are revised as regards all important operations. Regions of the body are invaded which fifteen or twenty years ago were thought to be inviolate to the scalpel. Thousands of lives are now saved and thousands of people rescued from becoming invalids.

The methods of treating germs have changed very materially since Sir Joseph Lister first announced his antiseptic treatment and showed the way to a new era in surgery; but the principles are much the same.

Some germs have been found to be innocuous, even on wounded surfaces; others are deadly poisons. Some germs cause one kind of disease, some another; some are even antagonistic to others. They are all endowed with great resistance to ordinary medicines and are capable of propagation under adverse circumstances; they are contagious and infectious, and when carried from one person to another cause their specific disease to start up. The so-called blood-poison is a general name for many distinct varieties of germ-disease.

It matters not whether a simple wound is to be dressed, a leg amputated or a woman delivered, the one essential thing above all else which protects life and allows the wounded surface to heal is to make a *clean* field, to render the surfaces *aseptic*.

Aseptic. Septic. — These are two terms which are daily becoming the common property of the laity: the former means *without poison*, *germ-free*, or surgically *clean*; the latter means *poisonous*, *germ-laden*, surgically *dirty*. Let it not be supposed that the flesh looks to the eye differently in these two conditions, — it is not so necessarily. These bacteria are so minute that if a single *rod-bacillus* were enlarged fifteen hundred times it would then only reach across the head of a pin. Nor is their virulence in proportion to their apparent numbers, for in twenty-four hours a single germ may multiply to sixteen and one-half millions!

Surgical cleanliness is surgical morality, and consists not merely in washing off the rough, visible, outside dirt, but in rendering everything which can possibly touch the wound, directly or indirectly, germ-free. This condition is called *asepsis*; when, however, germs have entered the wound and the consequent changes due to germ life have developed, then the condition is called *sepsis*.

Antiseptics. — The important and practical question then is, how are these germs killed and how is the wound rendered aseptic? Lister discovered in carbolic acid a germicide of no mean power, and

even to-day this acid is most extensively used for the cleansing of wounds and instruments. This process of killing germ-life is called *sterilization*.

After carbolic acid came numberless other drugs, such as corrosive sublimate, phenyl, sulpho-naphthol, etc. Of this group corrosive sublimate is by far the most potent: it may be used in very weak solutions as one part to three, five, or even ten thousand of water.

Heat. — By far the simplest, safest, and most economical method of sterilization is by means of heat, either in the form of boiling water, dry oven-heat, or steam. Whatever can be baked for an hour at 140° of heat, or whatever can be steamed for an hour, and whatever can be boiled five minutes without impairing the integrity of the object sterilized, can be rendered absolutely sterile. Germs and their spores, which latter are more tenacious of life than the former, yield readily to boiling water in a few minutes; while some germs of the most virulent type may soak for hours in a tolerably strong solution of the chemical sterilizers without being killed. The tendency of the present is to substitute these natural means of sterilization for the chemical germicides.

Preparation for Operation. — Nothing withstands boiling; but as the flesh cannot be baked, boiled, or steamed, it is the custom before an operation to make free use of green soap and a brush to scrub off the external superficial dirt and then to give the skin a good scrubbing and soaking in corrosive sublimate, in the strength of about one part to two thousand. This prepares the skin antiseptically for the operation. The instruments and apparatus likely to touch the flesh are boiled; the hands and arms of the surgeon, assistant and nurse are rendered sterile by repeated scrubbing with soap and brush and some one of the several antiseptic processes in vogue. This requires fifteen to twenty minutes. All dressings such as gauze, cotton, etc., are steamed and neatly done up air-free and germ-free ready for use. Sponges, generally made of gauze, have been sterilized by steaming previous to the operation. Sutures, etc., have been boiled or steamed or soaked in some suitable disinfectant. The neighborhood of the wound is covered with steamed towels or sheets, the clothes of the operator covered with some sterilized coat, and in fact everything and everybody that is likely to approach the wound is first thoroughly rendered aseptic.

In the subsequent dressing of a wound, and for all time till the wound is healed, similar precautions are taken. Thus it is that by shutting out all germ-life one succeeds in securing primary union, a quick convalescence and a freedom from the risks of septicæmia and other blood-poisoned diseases.

The change from the old-fashioned soap-and-water cleanliness to the new antiseptic cleanliness has wrought marvellous results. Brains are exposed, gall-bladders incised and stones removed, kidneys

removed, wombs and ovaries and huge tumors taken out with a small mortality rate. These same operations were but dreams in the pre-Listerian days.

Inflammation.

ON *this pathological basis much of surgical disease rests.* Surgical inflammation is due in a great measure to the introduction into the tissues of germs which there multiply with great activity, forming as a result certain poisonous products called *toxines*. These toxines are deadly poisonous to the system, and when absorbed cause high fever, chills and sweats, loss of appetite and strength, and generally undermine the strength. It is as if so much mineral or vegetable poison had been introduced into the stomach. Their activity is astonishingly rapid when they are situated in tissues favorable to their development, like the peritoneum and other serous membranes, richly supplied with lymphatic vessels to convey the poison from one point to another.

There are several conditions favorable to the development of germs when introduced into the body, chief among which is *moisture*; hence to keep the wound dry and well drained is the constant aim of the surgeon. When bacteria are introduced into the system through a wound, they begin at once to put on their activity, and the production of toxines commences. Nature rushes, so to speak, to the field of the enemy, and a great fight at once occurs. She throws out a mass of lymph about the invaded portion of the flesh to surround the enemy and cut off his base of supplies. She forms out of her own blood *antitoxines*, so called. It soon becomes a question of which is the stronger form, — the toxines of the germs, or the antitoxines of the serum. This battle results in a thickened, congested, painfully swollen and reddened area, which, if nature conquers, softens and melts away, but which, if the enemy is victorious, breaks down and forms pus. The result depends largely on the location of the struggle, the strength of the patient, and the virulence of the germ. If it be in a part poorly supplied with lymphatic vessels and soft structures, nature has the advantage, because the enemy cannot find easy access to structures beyond the field of battle; but if the neighborhood of the invasion is in soft structures, the enemy quickly seizes on some short route to a neighboring lymphatic station and there deposits its poison and thus extends its field till nature is overwhelmed. The ability of nature to manufacture antitoxines quickly and mobilize her forces to the rescue on the one hand, and the virulence of the germ or its capability to develop its poison quickly, on the other, are always deciding elements in the preservation or destruction of the part attacked. Much is now being accomplished toward eradicating germ-diseases and germ-inflammation by the cultivation of this natural antitoxine. Its special victory is seen in the diphtheritic antitoxine with which that disease is now so successfully

fought. This antitoxine which nature throws out is cultivated in horses till such an amount is stored up that against it diphtheria no longer has any influence ; this serum, so rich in antitoxine, is then introduced into the human subject as an antidote to the forming toxins of the diphtheria.

And so it is with lockjaw, rabies, and many other germ-diseases. This therapeutic agency is yet in its infancy, but much may be expected of it in the future.

But not all inflammation is necessarily of bacterial origin, at least so far as is yet proven.

Every part of the body which has vessels and nerves is liable to inflammation. Where there are no nerves, it cannot exist. Many diseases are caused by it. Mechanical injuries, such as cuts, bruises, and fractures, produce it. And many other disorders, not caused by or causing it in the beginning, become entangled with it in their progress. It is very important, therefore, to understand the nature and management of inflammation. It is not always to be looked upon as a disease ; it is frequently a simple process of repair, whereby nature restores injured parts to health, in which there is no germ-life present.

The Signs of Inflammation are *redness, pain, heat, swelling and loss of function*, though in some cases these do not all appear.

Acute Inflammation. — When the redness, the pain, the heat, and the swelling are clearly marked, and the inflammation is so rapid that it either subsides in a few days, or quickly brings on *suppuration*, or *ulceration*, or *mortification*, it is said to be *acute*.

Chronic Inflammation. — When it is less painful, and slower in its progress, beginning very gradually, and lingering a long time, it is then *chronic*.

Common, or Simple, or Healthy Inflammation, is that which is not mixed up with any disease, but is established by nature for some salutary purpose, and is generally germ-free.

Unhealthy Inflammation is that which has been caused by some other disease, like the poison from germ life, and is under its control.

Specific Inflammation is that which seems to vary from all ordinary cases, being dependent on a particular state of the system, on an animal poison, or a principle of contagion or infection, and a power of propagation from one person to another, such as all germ-poisons.

Some of these produce such permanent effects, that those having them are not liable to a second attack.

Inflammation is Primary, or, as the doctors say, *idiopathic*, when it is the original disease.

Inflammation is Secondary, or Sympathetic, when it is the result of some other disorder, which goes before, and produces it.

It has been explained elsewhere that the different parts of the body are connected by little threads or nervous strings which run from one to the other. If one part of the body become injured or disordered, it uses these nervous threads as telegraphic wires, to tell other parts of its misfortune; and it sometimes happens that when the intelligence conveyed is of a sad and alarming character, the part receiving the news is so excited and distressed as to become *inflamed*. Nothing can be more proper than to call this *sympathetic* inflammation.

When the inflammation is violent, and is seated upon some important part, the sympathetic action is so great as to disturb the whole constitution; and this general disturbance is *sympathetic* or *symptomatic inflammatory fever*. On the other hand, it more frequently happens, especially in the light of modern surgical pathology, that the lymphatic system, which is in reality a delicate railroad system for the economy, leading toward the great citadel of life, the heart, carries over its tracks to the nearest station some of these germs or germ-poison from the primary wound or inflamed spot, thus spreading the contagion to whatever lymphatic station the vessel happens to run.

The Symptoms are quick and strong pulse, dryness and heat of skin, parched mouth, great thirst, scanty and high-colored urine, costiveness, disordered nervous system, loss of appetite, anxiety, restlessness, sleeplessness, headache, wandering and confusion of mind, and sometimes delirium. This fever John Hunter called a universal sympathy of the body with the disturbed condition of a part of it.

It is only by inflammation that a wound is healed, or a broken bone repaired.

Upon the surface of a wound nature pours out a fluid called *plastic lymph*. This is composed of *fibrin*, — the material of which flesh is made, — united with a little of the watery part of the blood, chiefly albumen. The watery part disappears soon after it is poured out, and the fibrin hardens into a kind of membrane. Through this, nature sends small nerves, arteries, and veins, which she uses as *threads to sew up the wound*. Fibrin being the chief material with which nature constructs our bodies, she of course uses it to repair them when wounded, just as a carpenter, who constructs a floor with planks, uses planks to mend it when it is broken through.

Buffy Coat of the Blood. — The effects of inflammation extend to the blood. This fluid, when drawn from the veins of a person suffering from an inflammation active enough to disturb the constitution, forms a clot in the basin more slowly than usual, but the clot is harder; and a layer of fibrin is left upon the surface, of a *yellowish buff-color*, looking like size or glue, and called the *buffy coat*. The clot is also scooped out in the centre, and the blood is said to be *cupped*.

Coin Discs. — It is another peculiarity of inflamed blood, that if a drop of it be examined under a powerful microscope, its globules, or discs, which are very numerous, will be found standing on their edges, and leaning against each other, like a row of copper or silver coins. (Fig. 152.)

Inflammation may end in one of four different ways.

I. By Resolution. — Suppose a large splinter of wood be stuck into the hand of a healthy man. It causes redness, heat, swelling, and pain; and these combined are inflammation. The splinter is pulled out, and the hand well done up with a disinfectant dressing, and properly cared for. The redness fades, the heat declines, the swelling subsides, and the pain disappears; the inflammation is ended, and the hand is well. Coming to a fortunate end in this way, inflammation is said to be *resolved*, or terminated by *resolution*.



FIG. 152.

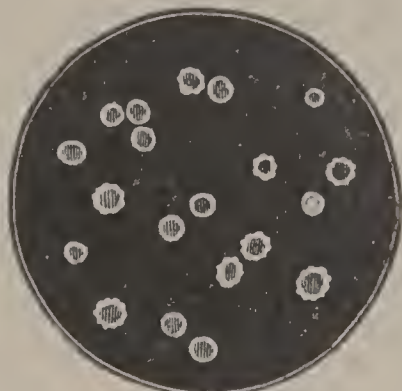


FIG. 153.

II. By Suppuration. — It does not always end so happily. The splinter may be broken off below the skin, and not pulled out; or, even if removed, germs may have been introduced from the splint or from the skin of the hand; these germinate rapidly and form pus, and instead of the inflammation abating, it will increase, and the centre of the injured part will begin to rise up to a point, and grow white on the top. This shows that there is *matter* formed underneath, which is lifting up the scarf-skin, and seeking to come through. Fig. 153 is a microscopic view of pus corpuscles.

The pain is now very throbbing and pulsating — keeping time with the beats of the heart. When the scarf-skin can hold out no longer, it breaks, and yellow, cream-like fluid runs out, which we call pus. The redness, pain, etc., now subside. This process we call *suppuration*.

At this time, if the wound have been a severe one, attended by sympathetic fever, and the discharge of pus be now large, there may be a change in the fever, marked by frequent shiverings and chilliness, followed by flushes of heat, which ends in sweating. We call this *hectic fever*.

III. By Ulceration, or the formation of open, running sores.

IV. By Mortification. — If the wounded part have been so much injured as gradually to destroy its vitality, it dies. The vivid red of the inflammation changes to a purplish, or livid, or black hue. The strained condition of the skin ceases, a bloody fluid lifts up the cuticle, the pain and feeling are all gone,—the part is dead and putrid, and gives out a peculiarly offensive smell. This process is called *mortification*.

The mortified and dead part is called a *slough*; and it is separated from the living parts by a peculiar vital process which has the name of *ulceration*.

Treatment of Inflammation. — Though inflammation sometimes ends kindly by resolution, and though it is often a salutary process, yet it is frequently very destructive, ending in suppuration, ulceration, and mortification, thickening, hardening, softening, and enlarging parts affected by it; and doing these things in textures of great delicacy, and of vital importance in the economy of life. It calls, therefore, for judicious, and, often, for very active treatment.

There are three principal things to be done, — to remove the cause, if it be still active, to take the blood away from the inflamed part, and to render the part aseptic, if possible.

If a bullet be lodged in the flesh, or a thorn, or a splint of wood, or a piece of glass, it is the exciting cause of the inflammation which follows, and little can be done to advantage till the offending substance is extracted. If inflammation be excited in the bladder by the irritating presence of urine which cannot be passed, this must be drawn off with the catheter before relief can be had. If the stomach be inflamed by improper food, or too much of it, the diet must cease to follow appetite, and take reason for its master. If ladies have excited inflammation in the bowels, or any of the internal organs, by a dragging weight of skirts, they must either put off the burden, or hang it upon the shoulders with straps.

The blood is removed from the inflamed part in two ways: —

Cupping and Leeching. — It is done directly by cupping and leeching. These methods take the blood out of the small vessels, which are so full and crowded as to produce pain. Cold water, ice, etc., applied to the part cause these little vessels to contract, and squeeze the blood out of themselves. These are very useful applications; and they are to be pursued as long as there is any hope of breaking up the inflammation, or causing it to end by resolution. But when this is no longer to be expected, and it is found that it will go on to suppuration, then apply warm fomentations and poultices. These will mollify and soften the parts, and cause the suppurating to go on more rapidly and with less pain.

Counter-Irritation. — The other method of removing the blood from the inflamed part is by what is called counter-irritation.

People are apt to think it very absurd that inflammation should be

induced in one place to relieve or cure it in another. But it is not absurd. It relieves or cures on the principle of sympathy, which I have already explained. We put croton oil, or tartar emetic, or spanish flies, or cayenne pepper, or mustard, upon the surface of the bowels when the internal parts are dangerously inflamed, and what is the result? Why, the terrible smarting and pain alarms nature, and she rushes up to the surface with a large amount of the blood around the inflamed parts, and there, for hours, perhaps for days, struggles to beat down the new mischief at the surface; and, in the mean time the internal parts, relieved by the removal to the surface of so large a quantity of hot blood, make a long stride towards recovery.

A popular orator is speaking to a multitude in a hall, which is thronged to excess, and a few feeble persons faint, and are likely to be suffocated and trodden upon in the dense mass. A person at the door, seeing what has happened, cries "*fire*." The crowd rush out; the fainting persons get breath, and are saved. So, when the thousand streams of blood rush through their channels upon an inflamed and fainting internal organ, crowding and oppressing it, we set the skin on fire with some inflammatory substance; the blood rushes to the new point of excitement, and the oppressed and fainting organ recovers.

Cupping and leeching, which are often necessary, are not to be resorted to in very debilitated constitutions. In some persons, leeching produces erysipelas.

Costiveness is always produced by the symptomatic fever which often results from inflammation. This should be removed by saline purgatives, such as Rochelle, Epsom or Glauber's salts, salts of tartar, tartrate of potassa, and the tartrate of soda (9), (7), (12), (14), (18), (20), (25), (27), (41). Sometimes more active purgatives are required, and then the compound extract of colocynth, etc. (29), will be excellent, or two compound cathartic pills, at night, followed by (299) may be used.

As a drink, cream of tartar (298) will be found cooling and refreshing. In all inflammations, the diet must be light and unstimulating.

To allay the excessive fever and pain of inflammation, some of the coal-tar products may be used, like ammonol or phenacetine, in ten-grain doses, every two to four hours; but it must be remembered that inflammation is the result of poisons and not the cause of them, hence these remedies are but temporary and palliative, and must be used while the real cause is being fought by removal of the original source of the trouble.

The third method of treating inflammation is the most important, because generally it strikes home. Inasmuch as most inflammation which comes from outside causes is the result of the introduction of bacteria into the body, the most natural thing to do is to disinfect

at once the injured or diseased part. The bruised finger, the hole made by the bullet, or the cut by the knife, all need to be bathed in some antiseptic solution to kill all germ-life and arrest the development of their poisons, which inevitably cause inflammation. Such solutions should be injected into the wound or freely bathed over the surface. They are legion in number, but only a few may be mentioned, such as corrosive sublimate, which one can buy in tablet form of the druggist, and of which one is taken dissolved in two quarts of water; strong carbolic acid is another disinfectant, and may be used in strength of one teaspoonful of the ninety-five per cent acid to a pint of water. Sulpho-naphthol or oil of milk, is still a third disinfectant, and is used in strength of one-half teaspoonful to a quart of water; this latter turns the water milk-color. Carbolic acid on standing long or being exposed to the light turns reddish, but is not impaired in efficacy. The sulpho-naphthol is the least expensive, and may be used for sinks, drains, etc. It is perhaps the safest and best to have in the house.

Suppuration and Abscess.

AN abscess is the collection of pus or matter in the substance of some part of the body. When the matter is poured out from some part, the process is said to be *suppuration*; when it collects in a tissue, it is an *abscess*. When the matter collecting in some organ comes towards the surface, and a place in the centre rises above the surrounding skin, and turns white, the abscess is said to *point*. Some abscesses point and break in a week; others of a more chronic character will linger on for months.

Fluctuation. — Before an abscess points, a *fluctuation* may generally be felt in the swelling, which is one of the surest signs that it contains pus. Sometimes this fluctuation may be felt even when the matter lies very deep in the flesh. And when it is so deep that it cannot be felt, if a sudden cessation of the symptomatic fever should occur, and *shiverings or rigors should come on*, attended by coldness in the affected part, we may reasonably suspect that pus is formed. It is not easy, at times, to say whether matter is really present; and great care should be used not to plunge in a lancet where none exists. Chills and fever due to pus formation are caused by the absorption into the system of the poisons of ptomaines, which are the result of germ-life, and their propagation.

Treatment. — When the abscess is completely formed, and there is no longer any doubt of the presence of matter, it should be opened at once. To let out the confined pus alleviates the pain and lessens the inflammation. If the matter lie close to a bone, the opening should be made without delay. The opening should be large enough to let the matter out freely. It is a rule to keep the incision open

till the cavity of the abscess is so far filled up that another collection of pus is not likely to occur.

If the matter do not readily get to the surface through the opening, it may burrow itself in the flesh, in a long narrow channel called a *sinus*. To relieve this, the opening must be extended in such a way as to give vent to the new collection.

An abscess is sometimes indisposed to heal at the bottom, and pus continues to be formed a long time, and is discharged through an opening smaller than the sack which contains it. This is a *fistula*, and the opening to it should be enlarged so as to let out the matter more freely. A little soft lint may then be gently pressed into the wound to prevent its healing before the cavity below. The cavity should be freely scraped out to remove all germ-life, and then thoroughly disinfected and kept clean and aseptic by aseptic gauze packings, and in this way nature is bound to heal the wound.

An abscess from acute inflammation requires to be poulticed for a time after it has been opened. When the swelling and inflammation are gone, the poultices are to be laid aside, and a bandage put on. When the inflammation is gone, let the diet be improved; and if the discharge of matter be large, give wine and tonics.

Mortification.

THE complete death of a part of the body, and its change into a black, stinking, cold, and insensible mass, with which the other parts of the system have discontinued all organic connection, is what we call mortification. That form of it which is most common is said to be *humid*, on account of the moisture of the dead parts. It is the result of nature having walled off by her antitoxin the scene of the battle, and while she has lost the original battle and the original field, has nevertheless succeeded in keeping out the enemy from the remainder of the system. The enemy feeds on the dead tissue, setting up a putrid, stinking cesspool of filth.

Gangrene.— Before the mortified part is completely dead, and, consequently, while its recovery is supposed to be possible, the condition of the part is called *gangrene*. Diabetes is shown by the presence of sugar in the urine, and kidney trouble is shown by the presence of albumen in the water; these are probably the two most common causes of gangrene in the extremities.

Sphacelus is the name given to it after its entire death.

Sloughing is the process of separating the dead matter, and the substance separated is a *slough*.

The causes of mortification are quite numerous. The most common are, stoppage of the circulation by inflammation, by mechanical causes which obstruct the passage of the blood, by chemical agents and poisons, and by local or general debility.

In a bad constitution, which bears disease poorly, mortification is *very* dangerous.

Treatment. — In treating mortification, three things are to be aimed at, — to stop its progress, to promote the separation of the dead from the living parts, and to heal the ulcer which is left after the separation.

To stop the progress of mortification, we must remove its cause. If it be inflammation, treat that according to the principles laid down, though leeching, purgatives, etc., should be used sparingly, as mortification reduces the constitution so rapidly that it does not bear reducing well, and sometimes not at all. As soon as the inflammation has subsided, particularly if the system be weakened, tonic bitters and a nourishing diet must be had. When there is fever, with great excitement of the nervous system, delirium, picking of the bed-clothes, etc., the patient should have anodynes (121) and anti-spasmodics (87), (91), (90), drafts upon the feet, and such other local remedies as the case may require. Here opium and stimulants are of paramount importance.

It is of little use to put anything upon the mortified part, except with a view of lessening the stench. For this purpose, lay upon the part lint soaked in a solution of chloride of lime or soda, or a solution of pyroligneous acid, or of creosote.

Very little can be done to hasten the separation of the dead part from the living; but while it is taking place, a common flax-seed poultice, mixed with a little powdered charcoal, may be kept on it.

The ulcer left after the separation is to be treated like other ulcers. A dressing of bovine and five per cent solution of carbolic acid, equal parts, will be found to hasten the granulation.

Pyæmia.

THIS frightful affection has been called the bane of surgery. It is caused by a peculiar poison, resulting from the fermentation and disintegration of the tissues of a wound, which is taken into the system either by the veins or absorbents, and is usually accompanied by the formation of collections of pus in the various tissues and organs of the body. It follows very trifling as well as severe injuries, and it is a frequent *sequela* of surgical operations, oftentimes of a very slight character. The only tenable theory which can explain the different phenomena of this disease is, that the pyæmic condition is caused by the absorption of septic material, sometimes in a fluid, sometimes in a gaseous state, which unfits the blood for the processes of healthy nutrition, induces capillary stagnation and its consequences, low forms of inflammation in different parts of the body, as in the joints and serous cavities, and may finally produce those sec-

ondary deposits of pus, in any or all parts or organs of the body, called metastatic abscesses.

When an internal organ is involved, the result is generally fatal. When suppuration attacks the integuments or the extremities, there is a fair chance of recovery.

Thence the disease has been divided into two classes: the internal or acute, the external or chronic pyæmia. When pyæmia involves the internal organs the course is usually rapid and fatal. When it attacks the external parts, it is slow in its course and may be recovered from.

Duration of the Disease. — Sometimes its course is so rapid that the patient may die in two or three days after the appearance of the symptoms. As a rule, however, bad cases terminate during the second week. Some go on for six or seven weeks. In cases which recover, the patient goes through a long illness and may be left permanently crippled by secondary affections of the joints. As a rule, the longer a patient lives the better the hopes of a successful ending.

Pyæmic symptoms generally make their appearance after the fourth day. The first symptom is a chill; this is repeated at irregular intervals, and is followed by profuse and exhausting sweats.

The hot stage which characterizes the malarial paroxysms of intermittent fever is usually absent or but slightly marked. During the course of the attack, the temperature of the body, which is naturally $98\frac{1}{2}^{\circ}$ Fahrenheit, may rise six or eight degrees, and in ordinary cases its fall is, as a rule, gradual. The greatest elevation of temperature corresponds with the period of rigor. During the sweating stage the temperature falls again. Should the fall be sudden, a general breakdown of the powers of the patient is indicated. The pulse rate varies, according to the violence of the attack, from ninety to one hundred and thirty. The respiration is usually rapid, from forty to fifty a minute, and in many cases a hay-like odor of the breath is present, which is considered pathognomonic of the disease. The countenance is flushed, the skin dusky, sallow, sometimes jaundiced and marked with sudamina.

The tongue is coated, and there is a complete loss of appetite, and often nausea and vomiting. The urine is frequently albuminous. When the brain is involved there will be sleeplessness, or delirium of a low, muttering kind; some unconsciousness, from which the patient can be aroused only to relapse.

Intense pain usually attends the secondary complications, though it is sometimes remarkable how slight the symptoms often are when severe local disease exists.

The wound becomes sanious, serous, and fetid; sometimes the secretions are arrested and the surface becomes dry and glazed; sometimes absolute sloughing occurs. Union, if progressing, will become disunion, and all reparative action ceases. As the disease progresses, the symptoms become profoundly typhoidal, and the patient may die comatose or from exhaustion.

The exciting causes of pyæmia are very obscure. It attacks the healthy as well as the feeble, those surrounded by perfect hygienic influences as well as those who are exposed to deleterious influences. It is found not only in hospitals but in private practice; but it is more prevalent in unhealthy places, in the overcrowded wards, and in those spots where ventilation and drainage is bad. It lurks among the poorly housed and poorly fed and clad, and wherever those influences exist which are depressing to the vital powers.

The general treatment in these cases is of paramount importance. It is the duty of the surgeon to see that the patient's room is well ventilated, and that it is frequently purified by cleansing and disinfectants.

The wound is to be kept clean and well drained.

The dressings should be changed as often as four times a day, and saturated with disinfectant lotions.

When sloughing exists the charcoal poultice should be applied, and every measure pursued which will insure the utmost cleanliness of the patient and his surroundings.

The curative treatment is to be conducted on the same principles which guide the surgeon in the management of all cases of a typhoid-al character.

The bowels if constipated are to be opened by a gentle laxative, and the different secretory organs restored to a healthy action as far as possible.

The vital energies of the patient are to be maintained or stimulated, and everything that tends to lower them must be warded off.

Quinine is the most valuable remedy we have for the treatment of pyæmia. Some surgeons give it in large doses and speak highly of its effects. It is valuable in doses of four or five grains every three or four hours. It may be combined with iron advantageously in some cases. The best combination is with the citrate of iron. Four grains of each are to be given four or five times a day.

Stimulants are also of great importance to maintain the powers of life. In some cases it is necessary to employ them freely to keep up the waning strength.

The diet should be as nutritious as the patient's assimilative powers will bear. Milk and the animal broths are the best.

When the stomach rejects nourishment it must be given by the rectum, enema of beef-tea and milk with brandy being administered every four hours.

When the nervous system is disturbed by pain and want of rest and sleep, some of the forms of opiates or anodynes are to be given, small doses frequently repeated being better than large.

Should diarrhœa exist it is to be kept under control. It should not be checked suddenly, as it appears to have an eliminative tendency in cases of blood-poison.

Carbonate of ammonia in ten-grain doses five or six times a day is a valuable remedy when other tonics cannot be tolerated.

When secondary abscesses form, they should be opened and kept cleansed by some disinfectant fluid, such as carbolic acid or the solution of the chlorinate of soda, in their proper strength.

Ulcerations and Ulcers.

WHEN the small particles composing the body have been used a while, they wear out, and become useless. Over the whole body are distributed a multitude of small vessels, called absorbents, whose business it is to pick up these worn and loosened particles, and carry them away.

There is another class of small vessels, having just the opposite duty, — namely, to bring new particles of matter, and put in the places of those taken away. These are arteries. They are the natural artisans, who construct our bodies. The absorbents are the demolishers who pull them down. Under these two forces, our existence is, for a time, a drawn game between life and death. The absorbents, like myriads of hungry insects, eat us up, — the constructing arteries, like faithful builders, reconstruct us. The work of the absorbents, is called *absorption*; that of the constructing arteries *nutrition*.

When nutrition partially ceases, and absorption continues unabated, we grow thin, or lose flesh. This happens in consumption. If nutrition should stop altogether, absorption going on as usual, our bodies would be quickly destroyed. We should be wholly devoured by these little absorbent vessels. This would be *ulceration* applied to the whole body. But it does not appear in so *general* a form. It confines itself to particular parts.

When nutrition entirely ceases in any portion of the body, the absorbents devour all the skin, flesh, and vessels of the part, — leaving an open cavity. The process of taking away the flesh, etc., is *ulceration*, — the cavity left is an *ulcer* or *sore*.

Natural Surgery. — Ulceration sometimes acts the part of a natural surgeon. When a part dies from mortification, it is necessary to have it removed; so nature sets up, directly around it, an acute inflammation, in which all nutrition stops, and absorption goes on rapidly. In this way, a complete dike is in a short time made around the dead mass, and it is as handsomely amputated, or cut off, as any surgeon could do it.

When the ulceration is going on, and the blood-vessels are being cut off by it, the blood coagulates or curdles in them for a short distance back from the breach, which prevents bleeding. This is as good as tying the arteries.

Some textures ulcerate more easily than others, — the skin and mucous membranes most easily of all.

Ulcers are divided into *healthy*, *unhealthy*, and *specific*.

A **Healthy** ulcer is a simple sore, not showing any bad symptoms, but rather a kindly disposition to heal. It is generally small in size, of a florid-red color, and has upon its surface little elevations, pointed like cones, called *granulations*, which are not so apt as in the case of unhealthy ulcers, to rise above the level of the surrounding skin.

Unhealthy Ulcers comprise those called *irritable, indolent, phagedenic*, etc.

Indolent Ulcers are numerous. The edges of the skin around them are generally thick, prominent, and rounded. The granulations are pale, smooth, large, and flabby, with a peculiar gloss upon them. These ulcers form most often on the leg; and the nearer they are to the ankle, the harder they are to cure.

Phagedenic Ulcers are those which look as though they literally eat away the parts. Their surface has a livid appearance. The matter formed is small in quantity, and is frequently tinged with blood.

Specific Ulcers embrace *scrofulous, cancerous, venereal, scorbutic*, and others. They are called specific because they are produced by particular diseases and states of the system.

Treatment.—The first thing to be done is to remove the exciting cause. A venereal, or a scrofulous, or a scorbutic ulcer, cannot be cured, unless we first lessen the force of the disease in the general system. If the continuance of a sore depends on bad digestion, we cannot expect to cure it till we put the stomach right.

Healthy ulcers need no treatment, except some simple dressing, such as oxide of zinc ointment. It is well, in some cases, to touch the granulations near the surface with lunar caustic.

Ulcers upon the legs and ankles do not heal well if the patient walks about much, or even allows the legs to hang down a great deal. The patient must be put to bed and the leg bandaged, especially if the ulcers are the result of the breaking down of varicose veins, which are so common a cause of leg-ulcers.

Indolent ulcers are to be touched by lunar caustic, or by diluted nitric acid. The diluted ointment of the nitrate of mercury is also often used with benefit. So is the compound tincture of benzoin, the basilicon ointment, etc. Or, apply a bread-and-milk poultice to the ulcer, and keep the patient twenty-four hours in bed. Then apply the lunar caustic to the whole sore, and to the skin around it. Afterwards cover the ulcer with sticking plaster, and a bandage.

The following is the best plan. Lay upon the sore a number of pieces of lint, soaked in the nitric-acid lotion (314), and cover them with a bread-and-milk poultice. Change these applications twice a day, and continue them till the discharge looks healthy, and the granulations begin to appear.

If there is inflammation about the sore, give some of the prepara-

tions of salts to purge the bowels, and confine the patient to bed. When the parts begin to look healthy, lay some pieces of lint upon the sore, wet with nitric-acid lotion (214), or zinc lotion (215); and then apply strips of adhesive plaster, one and one-half inches wide, two-thirds round the limb, and extending an inch below the ulcer and an inch above it,—at the same time drawing the edges of the sore together with a gentle force, and retaining them there with the plaster. Put a compress of soft linen over the plaster, and apply a bandage over the whole, making it tighter below and a little looser above, and extending to the knee. (Fig. 154.)



FIG. 154.

Surgeons frequently snip out little pieces of healthy skin from some adjacent part and graft onto the ulcer, thus shortening the process of healing. A dressing of bovine and water in equal parts hastens the growth of the flesh part. Whenever the flesh is even with the skin it should be kept at this level by some mild caustic, as stated above. Then comes the time for transplanting skin. The varicosities of the veins must be cured, or at least improved before the ulcers will remain healed. Avoid the use of pork or lard.

Boils.—*Furunculus*.

UNDERNEATH the skin is a layer of tissue composed chiefly of cells. From this tissue there are small elevations, in the shape of cones, which rise up into the substance of the true skin. Like those papillæ of the skin which become inflamed and produce *corns*, these elevations are subject to an inflammation, which causes *boils*.

At first, a tender knot or hardness is felt just under the skin, which soon begins to look red. A painful tumor now begins to show itself, of a dusky red or purple color, which acquires the size of a pea, a hazel-nut or a walnut. Some time between the fourth and eighth day it becomes pointed and white at the top, when the scarf-skin gives way, and lets out a little pus mixed with blood, and exposes to view a mass of dead matter, called a *core*, which is too large for the opening, and is not ready to come away, if it were not. This core is a mass of *mortified* or *dead* flesh; and nature is cutting a space around it, that it may be thrown off. In two or three more days, it comes away, leaving a cup-like cavity, which gradually fills up, and the boil is over.

Some constitutions yield boils in successive crops. When this happens they are a terrible affliction. There are not many Jobs who can bear them with patience.

Treatment.—A boil will generally run its course. A five-grain blue-pill, taken at bed-time, when the boil is first showing itself, is about the only thing I know that will blast it. And yet, my unwillingness to encourage a general use of mercurials makes me hesitate to recommend it. One pill, not to be repeated, can do no harm, however, and may safely be taken.

Boils may sometimes be stopped by touching them with lunar caustic. Water-dressing, if used early, and persevered in, will sometimes prevent their growing larger than a pea. After the boil has opened, apply poultices for a day or two, then some simple, stimulating ointment, as basilicon salve, or Turner's cerate, or nitric acid lotion (314). If boils continue to come out in successive crops, give alterative medicines, or sulphurous mineral waters, or liquor potassæ, or bicarbonate of soda. General tonic treatment, with iron, quinine, etc., is usually required (65), (75).

A pill containing $\frac{1}{2}$ grain of sulphide of calcium three times a day and continuing for several months, while not able to cure the boil which is forming, will in a great measure prevent the appearance of others.

Carbuncle.—*Anthrax.*

THIS is like a boil, only much larger and more painful. Instead of one of the little cellular elevations being inflamed, as in the case of the boil, the carbuncle begins with the inflammation of several. Its surface is more flat than that of a boil; its inflammation more violent; and the constitutional symptoms excited more severe. It has the breadth, sometimes, of the top of a quart bowl. Like the boil, it appears most often upon the neck, the shoulders, the back, the buttocks, the thighs, etc. It goes through the same process as a boil, and ends in the same way, only discharging a vastly larger core.

Carbuncles most often appear in persons above middle age, and indicate an impaired and broken constitution. They occasion great suffering, and sometimes prove fatal. Upon the head or neck, they are more dangerous than in other situations. They are now considered to be of bacterial origin.

Treatment.—Apply, constantly, during the formation of the carbuncle, either fomentations and poultices, or cold-water dressing. I prefer the latter. To stop both the local and the constitutional disorder, make two incisions in the form of a cross, cutting entirely through the dead mass. Then apply a fermenting poultice, or one of oatmeal, for two or three days, after which use the basilicon salve, or apply daily a weak solution of lunar caustic, or the nitric-acid lotion (314). During recovery, tonics are useful, such as quinine, tincture

of peruvian bark. Immediately on formation of carbuncle take Succus Alterans (*Lilly*), and continue three months. It will purify the blood and prevent another forming.

Malignant Pustule.

THIS is one of the five diseases which man may take from animals. The other four are the *cow-pox*, *hydrophobia*, *glanders*, and *malignant carbuncle*. This last is what the French call *charbon*, — pronounced *sharbo*. My own mother and an elder brother came near losing their lives by it, — having taken it by handling the flesh and tallow of a dead cow.

Malignant pustule begins with a water-pimple, not bigger than a millet seed. Underneath it is a hard point, surrounded with redness, like a flea-bite. This hardness is soon attacked by mortification, which spreads on all sides, and kills everything as it goes. Next, in fatal cases, come great restlessness, faintings, sunken countenance, dry skin, dry brown tongue, despondency, delirium, and death. It is supposed generally not to arise from constitutional causes, but to be produced by a specific poison or bacterium applied to the skin, or by eating the flesh of cattle which die of gangrenous diseases. The disorder is probably the same as the malignant carbuncle.

Treatment. — Deep incisions, and the application of the most powerful caustics, as the caustic potash, etc., and tincture of peruvian bark, quinine, aromatic sulphuric acid, wine, ether and opium. Probably the best treatment is to *surround* the pustule with a thick layer of ointment; then to fasten some lint to the end of a stick, wet it with nitric acid, and press it upon the pustule. Now apply cloths, wet with cold water, and when the slough comes off, dress with simple ointment, or touch occasionally with weak solution of nitrate of silver (211). When once opened it should be thoroughly irrigated with disinfectants like corrosive sublimate, in strength of 1 part to 2000 solution.

Chemical Injuries.

THESE are of two kinds, produced by causes of an exactly opposite nature. The first are

Burns and Scalds.

A *burn* is the effect of concentrated heat acting upon living tissues. The effects are inflammation, and sometimes complete disorganization and destruction of the parts.

A *scald* is an injury produced by applying hot water or other fluid, to the skin or mucous membrane. The natural temperature of the human body is ninety-eight degrees; that of boiling water, two hundred and twelve degrees. Bringing the skin in contact with a fluid

heated so far above it, produces redness and pain ; and when nothing is done instantly to ward off the injury, the scarf-skin is raised from the true skin in the form of a blister, filled with water.

The degree of danger from a burn or scald depends upon the *extent* of the injured surface, and also upon the *depth* of the injury. An extensive scald or burn may prove fatal in a few hours,—the patient never rallying from the first prostration. These injuries are most dangerous when upon the head, neck, chest and belly. Old persons, and those who are feeble and have shattered constitutions, will sink under burns and scalds from which robust persons will suffer but little.

Treatment.—For slight burns and scalds, make cold applications. Put the injured part in very cold water, or lay upon it pieces of linen, or lint, wet with vinegar and water, or rose-water and sugar of lead (238), or diluted solution of acetate of ammonia. When these are not to be quickly had, lay on scraped raw potatoes, which is one of the best remedies to give immediate relief. The object is to reduce the inflammation, and to prevent blistering. They must, therefore be put on very soon. If the scald be extensive, and on the *body*,—producing shivering, faintness, paleness and coldness of the skin, and a small pulse,—cold applications are not proper. In such case we may use warm fomentations, or, in the case of a child, the warm bath. A liniment of spirits of turpentine, linseed oil, etc. (194), makes an excellent application. Also (371).

Raw cotton, spread out thin, and laid upon a burn, is a good dressing, and one which is much used. So is flour sprinkled upon the injured surface with a dredger. For loosening the flour when it is to be taken off, poultices are useful.

Keep the air from the wound as much as possible. With this view, do not remove the dressing often, and when a cold lotion is used, merely pour it upon the rags, letting them remain undisturbed. Stimulate and narcotize the patient if exhausted by the shock of the burn. Nothing is more generally used than carron oil, which is composed of equal parts of linseed oil and lime-water. It soothes, heals and promotes granulation.

Effects of Cold.—Frost-Bite.

COLD is a relative term. The same temperature may be called hot or cold, according as it is compared with a hotter or colder temperature. If we warm one hand by a fire, while we lay the other upon ice, and then plunge them both into cold water, the water will feel cold to the one which has been by the fire, and warm to the one taken from the ice.

The warmth of the body being ninety-eight degrees, any temperature below this may be said, in a certain sense, to be cold. Yet a temperature much lower than this, namely, from sixty to seventy, is

the most agreeable and invigorating, because it takes away the heat just about as fast as it is produced in a healthy body.

The first effect of cold applied to the body is to weaken the circulation in the small blood-vessels of the skin. When applied with some intensity, the heart and arteries in general are weakened; the blood is delayed in the vessels near the surface, and not being changed to a red color in the lungs as fast as it should be, the fingers, ears, etc., become blue or livid; and, if the cold be continued sufficiently long, the circulation stops in these parts; heat ceases to be evolved, and mortification or death is the consequence. Parts killed in this way are said to be *frost-bitten*.

A free circulation of red blood is essential to the continuance of sensibility. Hence, when the circulation is seriously impeded by cold, the body becomes numb,—it loses its feeling; the muscles act feebly; a languor and torpor follows; drowsiness comes on, followed by sleep, from which there is no waking. Drowsiness, during exposure to extreme cold, indicates great danger.

Treatment.—It is a great principle in restoring frost-bitten parts, and persons benumbed with cold, to communicate heat in the most gradual manner. It has been said that the degree of external heat should be in proportion to the quantity of life. When life is weakened and nearly destroyed by frost, therefore, the warmth must be small, and rise no faster than life returns.

To restore a frozen limb or part, rub it with snow, or place it in cold water for some time. When feeling begins to return, still keep it in cold water and let heat be added in a very gradual manner, by pouring in, now and then, a very small quantity of warm water.

If a person be reduced by cold to insensibility, and *apparently frozen to death*, take his clothes off, and cover him all over with snow, except the mouth and nostrils. If snow is not to be had, put him in water as cold as ice, and let him lie for some minutes. Then rub him with cloths wet with cold water. When the body is thus thawed by degrees, and the muscles begin to relax, dry the body, and placing it in a cold bed, rub with the warm hands, only under the clothes. Continue this for hours. If signs of life appear, give a small injection of camphor and water, and put a drop of spirits of camphor on the tongue. After a time, rub with spirit and water, and finally with spirit, and give tea, or coffee, or brandy and water.

Chilblains.

THESE are caused by exposure to cold, and affect the fingers, toes, and particularly the heels, with a painful inflammatory swelling, of a red, purple, or bluish color. The skin may be red in patches, and slightly swelled, with itching, tingling, pain, and lameness; or there may be blisters, around which the skin is blue or purple; or, worse yet, there may be ulceration and sloughing.

Treatment. — Stimulating liniments are the remedies usually employed for this complaint. One of the best consists of six parts of soap liniment, and one part of tincture of Spanish flies; and another excellent one is prescription 307. If there is ulceration, use Turner's cerate, or the resin ointment.

Mechanical Injuries.

WOUNDS are divided into several kinds.

Incised Wounds are very common. Being made with sharp instruments, they are *cuts*, and have no laceration or tearing about them.

Stabs, or Punctured Wounds, form another class. They are made with pointed weapons, as bayonets, lances, swords, and daggers. They are more dangerous than the former, because they penetrate to a greater depth, — injuring blood-vessels, nerves, bowels, and other organs.

Contused and Lacerated Wounds form still another class. They embrace gun-shot wounds, and all those produced by blunt instruments. They *tear*, and *bruise*, and *mash* the flesh.

Poisoned Wounds form yet another class. They are such as are united with the introduction of some venomous poison into the incised, or punctured, or contused part. Stings and bites of venomous insects and snakes are of this class, — also the wounds made by poisoned arrows.

Simple Wounds are such as are inflicted on a healthy subject with a clean, sharp instrument.

Complicated Wounds are those inflicted when the state of the whole system, or of the wounded part, is such as to make it necessary for the surgeon to deviate from the treatment needed for a simple wound, — as, for example, when there is bleeding, or nervous symptoms, or great pain, or locked-jaw, or much contusion, or erysipelas.

Lacerated wounds are more dangerous than incised ones, because the parts are stretched and otherwise injured, besides being separated.

A very small wound upon the brain, the spinal marrow, the bowels, or the heart, will often prove fatal, because the functions of these parts are intimately connected with life.

Wounds of young persons heal much more rapidly and kindly than those of old persons.

Septic Wounds.

WHENEVER a surface has been cut, lacerated, or in any way injured, so that the surface can absorb germ-life from the instrument inflicting the wound, from the dressings used to cover it up, or from

the dirt of the skin itself, we are very apt to get in a few days what used to be known as *sympathetic fever*, but which is no more or less than the septic fever, or the systemic manifestation of germ absorption. Fever, loss of appetite, headache, swelling and tenderness of the wound, with perhaps pus formation, are the natural outcome of such absorption. Hence it will readily be seen from what has been previously said about *sepsis*, that the first indication in all cuts is to disinfect the area injured with some one of the germicidal solutions. None is cheaper than corrosive sublimate in the strength of one part to two thousand. This, in many cases, is all that need be done. If the cut is to be sewn up, the wound is first cleaned with corrosive sublimate or oil of milk solution (a half-teaspoonful to one quart of water), and then sewn with needle and thread that have been boiled five minutes. The dressings or bandage should be disinfected with steam before being applied. Druggists nowadays keep in stock aseptic gauze meant for precisely this class of cases, lacerated wounds, etc.

Incised Wounds.

WHEN the flesh is divided with a cutting instrument, the cut edges separate, and the wound has a gaping appearance. This drawing apart happens in consequence of the elasticity of the skin. It often happens that vessels of considerable size are cut, so that bleeding is the principal thing to receive attention.

Treatment of Hemorrhage.—Bleeding is stopped by the *tourniquet*, by the *ligature*, by *compression*, by the application of *cold water* and *ice*, and by *astringents* and *styptics*.

The Tourniquet. — This instrument consists of a band and buckle, a pad and two brass frames, the upper of which is furnished with two small rollers, and the lower with four, over all of which the band plays. When the handle is turned to the right or left, the band is tightened or relaxed to just the extent required. (Fig. 155.) The band is buckled round the limb in such a manner that the pad is placed exactly over the artery. When an artery is cut, it is known by the blood being *very red*, and *spirting out in jets*; and in this case, the instrument must be placed upon the limb *above* the wound, or between it and the heart.

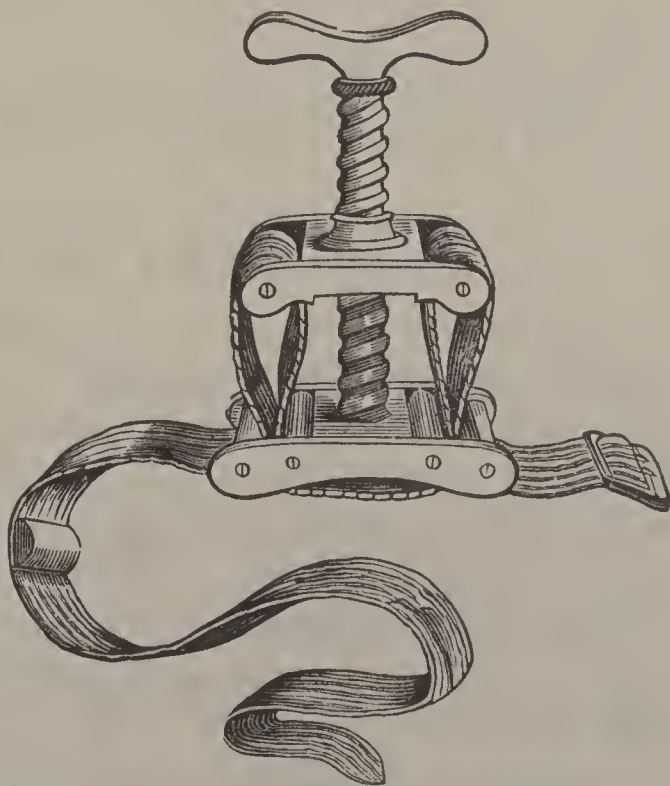


FIG. 155.

The Ligature. — When an artery is divided, the surgeon lays hold of the end of it with his forceps, and ties a thread tight around it, or twists the end of the artery. This is called a *ligature*. By it, the bleeding is instantly stopped, and long before the thread becomes loose, the opposite sides of the vessel have grown together, and all danger of a renewal of the bleeding is over. In all these procedures the careful surgeon uses only disinfected instruments and ligatures.

Application of Water and Ice. — This is done by saturating with cold water several folds of linen rags, or lint pads, and applying them to the wound, remoistening, and reapplying them as fast as they become hot, till the pain and inflammation subside.

Compression. — When the blood does not come from any large vessel, but from several small ones, compression is sufficient. It consists in placing the opposite sides of the wound together, if possible, and then laying compresses over, and applying a bandage with moderate tightness.

Astringents and Styptics. — These are spirits, tinctures of myrrh, Peruvian bark, diluted mineral acids, solutions of tannin, alum, sulphate of copper, decoctions of white-oak bark, etc. These have the power to stop bleeding from small vessels. Monsel's salt is said to have more power than all the above. It is a preparation of iron and nitric acid, and has been used with great success in stopping violent bleeding. It is not a caustic or an irritant; but it acts very powerfully upon albumen and blood, — producing with the latter a large clot, *absolutely insoluble*, which continues to enlarge for several hours after the application, and becomes quite hard and firm, so that no blood can get through; but it leaves the wound filled with clots which afterward decompose and often give rise to blood-poisoning. The compress wrung out of some antiseptic solution is always the best method when practical.

Beside these means, the application of the lunar caustic, potash, and the hot iron, are used, particularly the first, quite often.

Union by the First Intention.

WHEN the bleeding is stopped, all foreign substances removed, and the wound properly cleansed, the next thing is to bring the opposite sides of the cut evenly together, and to keep them steadily in this position till they have healed. If this method succeeds, the healing takes place without the formation of any pus. This is called *healing by the first intention*, or *adhesion*. The cut surfaces *grow together*. For keeping the surfaces together, straps of adhesive plaster are used, putting them at right angles across the cut, and leaving spaces between them.

Sutures. — Incised wounds are sometimes *sewed together* by what is called the *interrupted suture*. After the bleeding is stopped, a

a curved needle is threaded, and, the lips of the wound being brought together, is introduced through the right lip, and then, being directed across the wound, is pushed through the left lip, from within outward. It is now cut off, and tied in a bow. These stitches should be at least an inch from each other. These needles and sutures are, of course, to be boiled or otherwise rendered aseptic before using, as well as the hands of the one doing the sewing. Needles and thread come all ready put up in glass tubes, having been first sterilized, and kept in alcohol or in a vacuum for any length of time perfectly germ-free.

The first plasters and dressings should remain on the parts at least three or four days, unless very great pain, bleeding, or some other bad symptom, should call for their removal.

Useful Rules for Examining and Dressing Wounds.

NEVER give the patient more pain from the mode of handling and dressing the wound than is necessary for his present good or future safety. Never distress him by probing, squeezing, etc., to find things that will be of no use when learned.

Make all examinations as soon after the accident as possible; for before inflammation and swelling take place, the probe or finger inflicts much less pain.

In changing the dressing of a wound, let all the fresh ones be ready before the removing of the old. The sponge, warm water, adhesive plaster, lint, ointment, lotions, bandages, etc., should all be at hand, and not have to be looked after when the wound is exposed.

Put the patient in the most easy position, that he may not be needlessly fatigued during the dressing.

If the bandage, plaster, and other dressings, have become hard, and glued together, and to the skin, by blood or matter, soften them with warm boiled water, which is to be pressed out of a sponge,—a basin being held below the part to catch the water as it falls from the dressing.

The strips of adhesive plaster are to be removed by pulling gently at one end, and then the other,—each to be drawn *towards* the wound, so as not to pull its lips apart.

In large wounds, take off one, or at most, two strips of plaster at a time. Cleanse, wipe dry, and again support this part of the wound with new strips of plaster, before any more are taken off. This will prevent the wound being torn open by the weight of its parts.

If the wound be large and deep, its sides should be supported by an assistant while changing the dressings.

If there are several wounds, dress but one at a time, that there may be no needless exposure to the air.

Pay the utmost attention to cleanliness, asepsis and dryness.

The frequency of the dressing must depend on the amount and quality of the discharge, the situation of the injury, the climate and season of the year, the effect produced by the dressing, and by the feelings of the patient.

Remember that the one great desideratum is to keep away all germs from the wound and its vicinity.

Antiseptic Dressings.

ANTISEPTICS have lately attracted a great deal of notice in the treatment of inflammation, especially resulting from wounds.

The article most used at the present time for this purpose is carbolic acid. Lister is its chief advocate, and under his authority it has established a position which deserves attention.

It is based upon the germ-theory of disease, which is founded upon the observations of Pasteur. The theory supposes that animal decomposition is due, not to the chemical action of oxygen, or any other gas, but to the presence of organic germs floating in the atmosphere. Carbolic acid is used on account of its known destructive effects upon low forms of organic life.

These low forms of vegetable organisms, which float in the air in great abundance as constituents of the dust, are called by naturalists bacteria, of which there are many varieties. Whenever they find entrance into the body, there putrefaction is produced.

These vegetable parasites are capable of a wonderful power of multiplying their species, — a single germ producing in a few hours many thousands. Once admitted into the body, they find their way everywhere, — into the muscles, into the blood, into the different organs of the body, — and they spread destructive fermentation and putrefaction wherever they go.

In accidental wounds, it is first necessary to kill any septic organisms which may have been introduced from the air or from contact with foreign bodies. We do this by thoroughly bathing the surfaces with a solution of carbolic acid, of the strength of one part of the acid to twenty of water.

When the wounds are made by the surgeon, the germs are destroyed by means of a spray imbued with the acid. This spray is produced by an atomizer, of which there are many kinds, and is thrown continually on to the surface of the wound, until the completion of the operation, including the ligaturing of the vessels and the final stitching together of its edges.

Lister also recommends the use of carbolized catgut for ligatures, being of an animal substance and finally absorbed.

When the operation is fully completed, the antiseptic dressings are applied. Besides these antiseptic precautions, in cases of large and deep wounds a drainage tube is introduced to allow for the escape of the serum.

The antiseptic dressings consist of — first, the protector; second, the carbolized gauze; third, the mackintosh; and fourth, another layer of the gauze, and a bandage of the same to keep the whole in place. For the purpose of protecting the cicatrizing parts from the irritating effects of the gauze, a layer of oil-silk coated on both sides with copal varnish, and afterwards brushed over with dextrine, to enable it to become uniformly moistened when dipped into a watery solution of the acid, is applied directly over the wound, the ends of the drainage tube protruding about an inch from each extremity of the incision. The wound is then covered with a layer of antiseptic gauze dipped into a solution of one to forty of the acid. There are then superimposed six other layers of dry gauze; then the mackintosh or a piece of rubber cloth; then an eighth layer of gauze large enough to cover in all the remainder, and finally a bandage of the same.

When the dressings are renewed, it is to be done under the spray, great care being taken not to admit any non-carbolized air.

The dressings are not to be changed until the discharge has begun to soak through and appear below the edge of the rubber cloth.

Use dry dressing wherever practicable. Where much pus is being discharged this is out of the question, but where no pus is issuing, or in wounds that are entirely closed in, a dry sterile dressing which is aseptic, or germ free, rather than antiseptic or germ kill, is the best method.

The antiseptic gauze is made by impregnating cotton cloth of open texture with a mixture of carbolic acid one part, resin five parts, paraffine seven parts. The resin acts as a vehicle for the acid, while the paraffine is added to prevent inconvenient adhesiveness.

The Way in which Wounds Unite.

WHEN the two surfaces of a wound are brought together, they become impervious to the blood, but not to coagulable lymph, or fibrin. This,— the material of which all flesh is made,— flows out upon the two surfaces, and becomes a bond of union between them.

Into this layer of fibrin, the small blood-vessels,— arteries and veins,— which have been cut asunder, push themselves with open mouths, and, meeting in the centre, they inosculate, or grow together, and the blood resumes its circulation through them.

By this method, incised wounds of moderate size are often healed in forty-eight hours. This method of healing by the first intention is always to be brought about, if possible.

Punctured Wounds.

THESE are produced by swords, daggers, etc.

Great swelling and inflammation, large abscesses, erysipelas, the wounding of large arteries, and the consequent extravasation of blood,

symptomatic fever, and lock-jaw, are the frequent results of punctured wounds. They are, therefore, more dangerous and hard to cure than cuts.

Treatment. — For the first twenty-four hours, use superficial dressings of lint, wet with some disinfecting liquid, and a loose bandage. If, after this, pain and swelling should increase, leeches may be applied to the neighborhood of the wound, and fomentations, or poultices, be applied, placing a small linen rag or gauze, that has first been soaked in the disinfectant, over the wound. When the pain and inflammation are great, saline purgatives (7), (18), (25), (27), and opiates are often called for.

Contused and Lacerated Wounds.

THESE are produced by cudgels, stones, bullets, or whatever else of a blunt nature tears asunder the muscular fibres, leaving jagged and uneven surfaces. They are rarely healed without suppuration, and are frequently followed by violent inflammation. They suppurate and slough, but they do not bleed much, — not even, sometimes, when large arteries are torn asunder. Whole limbs are occasionally torn away without hemorrhage. In warm climates, lock-jaw is a frequent consequence of them.

Treatment. — Draw the edges of the wound loosely together, and retain them with a few strips of adhesive plaster. Sometimes a suture, here and there, will be proper. If a great deal of inflammation ensues, take away the adhesive plaster and the stitches, and apply a poultice, or water-dressing; and if there be much fever, restlessness, or delirium, saline purgatives (18), (25), and opium (118), will be needed; but especially will it be necessary to again disinfect the wound, and by every means possible render the field aseptic.

The wound having thrown off its sloughs, suppurated, become clean, and formed granulations, the poultices are to be taken off, and simple dressings substituted. These should be adapted to the conditions of the sore, according to the directions for treating ulcers.

When the wound is so severe that extensive mortification will be sure to follow, the limb must be immediately taken off, to save the life of the patient.

Granulation and Scarification.

SUPPURATING wounds heal in the same way as ulcers. The chasm is filled up by the appearance of little soft elevations of new substance, which originate at all points, and meet at the centre, drawing the sides nearer together, and raising the bottom towards the surface. This is called *granulation*, because these elevations *look like grains*; and the result is a new tissue, of a peculiar character, which constitutes the cicatrix, or scar.

Reproduction of Lost Parts.

AMONG some of the lower animals, whole limbs which have been destroyed are easily reproduced. It is not so with man; though certain parts, when only partially destroyed, are sometimes regenerated. Thus, portions of skin, of considerable extent, are often reproduced; and so are the whole of some long bones, when destroyed by necrosis. The same is true, to some extent, of ligaments. But portions of brain, and spinal marrow, and muscle, and mucous membrane, when once removed, are never regenerated.

Gunshot Wounds.

AT a time when fire-arms are so much carried about the person, and so often used for purposes of duelling and murder, it is proper that every person should know something of the modes of treating gunshot wounds.

Treatment. — It is often proper to make a gunshot wound larger at the orifice. When this is done, it is generally on the side where the bullet has passed out, if it has gone entirely through. A bullet is always to be removed, if it can be felt.

The dressings are at first to be superficial, light, unirritating and aseptic. The common antiseptic dressing, covered with a piece of oiled silk, is one of the best. Where suppuration occurs, because of the introduction of germs into the wound, poultices may be called for, but the douching and cleansing of the wound with hot oil of milk solution is often demanded and always grateful.

Poisoned Wounds.

To the bites and stings of various creatures man is exposed in most climates, and in all seasons of the year. These may be divided into three classes.

Bites of Mosquitoes and Spiders, and Stings of Bees and Wasps. — For these, the best applications are a solution of common salt, or water of ammonia, or sugar of lead (239), or laudanum, or tincture of iodine. If none of these are at hand, at the moment, cover the part with wet earth. Tincture of arnica (240) is a good application (See article on Bites, etc.)

Bites of Venomous Snakes. — Either instantly cut out a piece from the bitten part, or apply a dry cup, to prevent the absorption of the poison, or suction with the mouth will sometimes answer the same purpose. After doing one of these things, touch the part with caustic potash. Internally, give Fowler's solution, twenty drops, in a little water, every two hours. Also purgative injections, stopping the arsenic when purging is well established; or drink freely of whiskey.

For the bite of the rattlesnake, a remedy is alcoholic drink, taken in large quantities, and immediately. Gin and whiskey are believed to be the best. Fill the system full. When the poison has begun to take effect, enormous quantities will be borne, before intoxication can be induced. Keep the whole person saturated until the symptoms decline.

The best treatment is the prescription of the saturated solution of permanganate of potassium applied directly to the wound and the dose of 1 to 2 grains diluted given by hypodermic injection about the wound.

Also a ligature applied in the form of a rope or twisted handkerchief between the bite and the heart, and twisted tight to stop the circulation, will prevent the entrance of the poison into the blood.

Fractures.

THE existence of a fracture is to be known by the symptoms. These are pain, swelling, deformity from the limb bending to one side, sometimes shortening of the limb, or loss of power to use it, and a crepitus or grating sound or sensation from the rubbing of the ends of the broken bone together. There are several kinds of fractures. They are

The Transverse Fracture, which is directly across the bone.

The Oblique Fracture, which runs from side to side, in an oblique direction.

The Longitudinal Fracture, which runs lengthwise of the bone.

A Simple Fracture is one in which the bone is broken simply, without any wound of the flesh with it.

A Compound Fracture consists of a simple fracture, and of an external wound in addition, caused by pushing the end of the broken bone through the flesh.

A Complicated Fracture is one in which, besides the breaking of the bone, there is the dislocation of a joint, the wounding of an artery, the extensive tearing of the soft parts, or the wounding of the bowels or some other internal organ.

A Comminuted Fracture is one in which the bone is broken into several pieces.

Treatment of Fractures. — When a bone is broken, the first thing to be done is to get the injured person to his home, or to the nearest house. To do this in a rough or careless way might add much to his sufferings.

If it be an arm which is broken, let it be placed in a broad sling, extending from the elbow to the fingers. In this condition the patient, if in tolerable health, and the distance is not great, will find it easier to walk home, than to bear the jolting of a carriage.



FIG. 156.

If the leg or the thigh be broken, then a hurdle of some sort (Fig. 156), must be obtained as soon as possible, and, being covered with straw, or blankets, or garments, the patient should be gently lifted upon it by just persons enough to raise him easily from the ground. This should now be carried by four persons, two at each end, moving with great gentleness, and keeping exact step with each other. If these persons take hold of the ends of two poles, laid under the hurdle, they will find they can carry it much more easily. If no hurdle be at hand, let four poles, two long ones, and two short ones, be laid across each other at right angles, and fasten together with nails or strings. Then lay upon these an old door, or some loose boards; and the injured person may be easily carried upon this temporary structure. A blanket fastened upon four poles, in the manner of a cot-bed, will answer a good purpose.

Having placed the patient upon the hand-carriage, bring the sound limb and the broken one snug together, and tie them to each other with two or three pocket handkerchiefs; this will support the broken limb, and prevent its being shaken about and injured by motion. In doing this, the limb should be laid as near as possible in the natural position, so that the bones may not get out of place, and their ends get pushed through the flesh.

The Reduction, or Setting of the Fracture, is the first thing to be done. By this is meant the bringing of the ends of the broken bone together, and adjusting them to each other in their natural position. This is done by what surgeons call *extension*, *counter-extension* and *coaptation*.

Extension means taking hold of the limb *below* the fracture and pulling *from* the body.

Counter-Extension is pulling *above* the fracture *towards* the body. These opposite pullings are done at the same time to overcome the force of the muscles, which contract, and draw the ends of the bone by each other and shorten the limb.

Sometimes no extension or counter-extension is necessary, the ends of the broken bone not being pulled out of their place. When the pulling is necessary, it should be gentle and steady.

Modern surgery has developed two simple mechanical means of making extension and counter-extension for the purpose of overcoming muscular spasm which rarely fail. One is by the use of elastic rubber bands, and the other by the attachment to the limb of a cord running over a pulley at the foot of the bed and sustaining a suitable weight. The method of employing these will be given in detail in connection with special fractures.

Coaptation means *adjusting* the ends of the bone to each other.

The next thing is to provide for keeping the ends of the broken bone steadily in contact, so that nature may have a fair chance to unite them.

To secure this object, mechanical contrivances are used, which are simple, and may always be had without difficulty.

They consist of *linen bandages*, about the breadth of four fingers, and from four to ten yards long; and *pads*, made of old woollen cloth or blankets lightly quilted together, or pillow-cases filled with tow, or chaff, or cut straw, or even leaves; and of *splints*, made of clapboards, or thick shingles, four fingers wide, and in length corresponding with that of the broken limb; or wheat straw laid side by side, and quilted into a piece of cloth to prevent them moving about. A very useful splint may be made from the fresh bark of trees.

The pads are to be placed *under* the splints, to prevent injuries to the skin; and the bandages to be bound over the whole.

A great point is to have the splints accurately adapted in each case, and the ability to affect this is an important element of success in this branch of surgery. Wood may be generally cut into suitable shape, but it is perhaps easier to use moulded splints of leather, felt, gutta-percha, or shellac cloth. The starched or plaster bandage or gummed paper may be effectively used; and with a proper pair of shears, sheets of tin or zinc may be cut into splints, which will answer admirably. Woven iron wire splints are highly recommended.

For some hours after a limb is broken, the parts continue to swell, and if bound up *immediately* with the pads, splints, etc., much needless pain will be occasioned. It is best, therefore, not to put these on under two or three days, but merely to lay the limb in a natural position, and perhaps lightly bind one splint to it. Broken ribs and collar-bones are exceptions, and should be bound up immediately.

A broken arm lies easiest half bent, upon a pillow; the thigh or leg, upon the outside, with the knee bent.

When the apparatus is once adjusted, the less it is meddled with the better.

In fractures of the shoulder or arm, a sling is a contrivance of great importance. This, if well made and adjusted, keeps the broken bone in its place, and at the same time allows the patient to take some exercise by walking about.

Besides the above contrivances, there is the *double inclined plane*

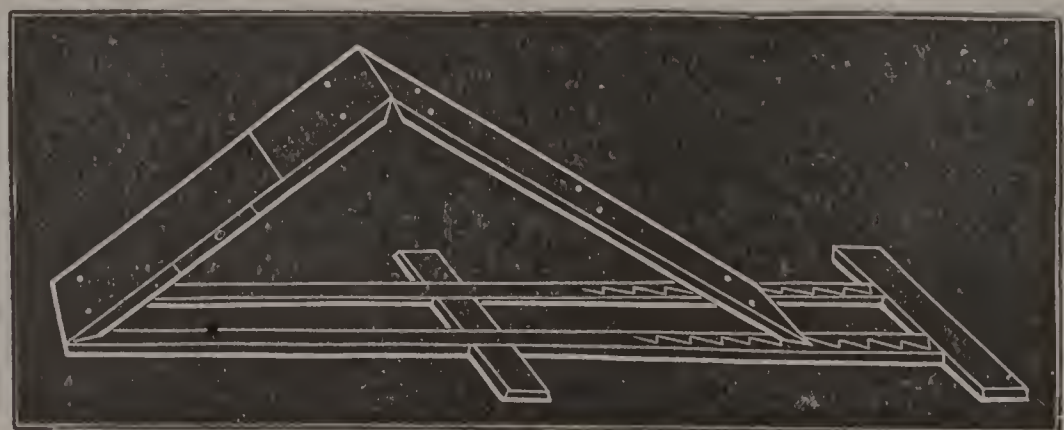


FIG. 157.

(Fig. 157) for giving the leg the advantage of a bent position. There are also *fracture-boxes* (Fig. 158), and *fracture-cradles*,—the latter to keep the bed-clothes lifted away from the painful limb. *Fracture-beds* are now brought to great perfection, and one should, if possible, be procured when the patient is likely to be confined a long time with a compound fracture. The fracture-box represented by Fig. 158, may be made from thin boards, by any carpenter. It has a hinge at the knee to enable it to fulfil the double purpose of a double-inclined plane and a fracture-box.

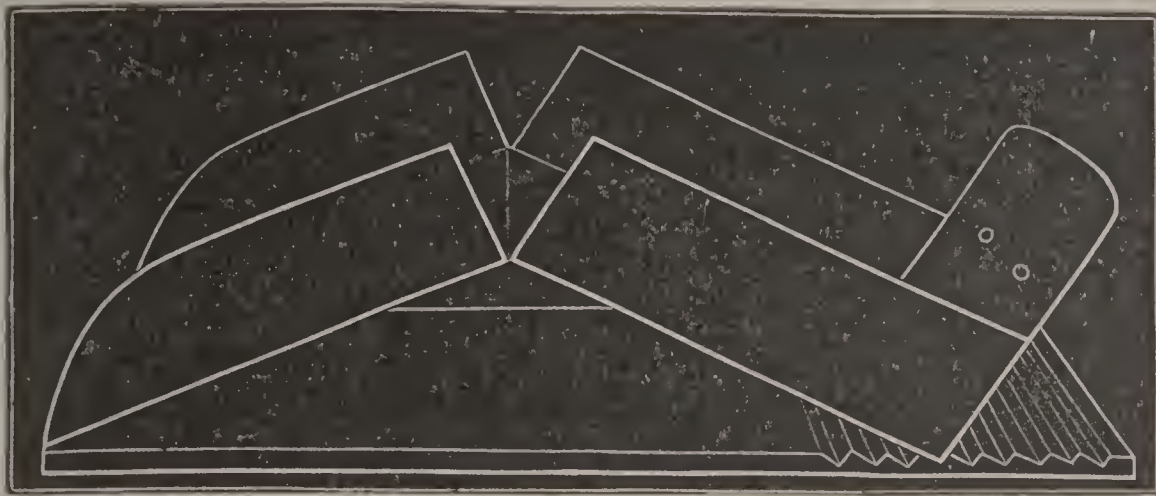


FIG. 158.

The Way in which Broken Bones Unite.

THE union of broken bones is much slower than that of severed flesh. The ends of the bone being kept steadily together, they soon become surrounded by a swelling of the soft parts, which change to a sort of osseous substance, making a kind of bony hoop, to act as a splint or support, — nature not being willing to trust the surgeon to keep the fragments exactly in their place. This is called a *provisional callus*, because it only has a temporary use.

This *First Stage* lasts about ten days. At the end of this time, a spongy substance appears between the ends of the bone. This substance is not bone, but in the swelling around the fracture specks of bone begin to be deposited; the fibrin here poured out becoming first cartilage, and then receiving into itself phosphate of lime, it becomes bone. A similar work is going on within, in the part called the medullary membrane.

This *Second Stage* lasts from the tenth to the twenty-fifth day.

Then begins the *Third Stage*, which goes to the end of the sixth or eighth week. During this period the external swelling, and the internal medullary membrane, become completely ossified and firm; though the ends of the bone are *not yet* grown together.

The *Fourth Stage* goes to the end of the fifth or sixth month. During this time, the *external swelling*, or *provisional callus*, becomes covered with a *periosteum*, and the ends of the bones themselves are fastened together by a bony union.

The *Fifth Stage* extends from the fifth or sixth to the twelfth month. During this time, the ends of the bone become grown together so strongly that the bony ring, or provisional callus, is no longer wanted, and it becomes absorbed, and disappears; in other words, having no further use for it, Nature takes off her splint. The place where the fracture was is now as strong as any other part.

Union in Compound Fractures.

THE union of compound fractures takes place in a different way from that of a simple fracture, just described. The bones remain dis-united several weeks, and there is no provisional callus formed; but after some weeks the ends of the bone *soften* and *granulate*, and these granulations are gradually changed into bone.

In nothing have the benefits of antisepsis been shown so vividly as in the treatment of compound fractures. Twenty years ago a large percentage of all compound fractures either suppurated or caused the death of the patient; but now suppuration and high mortality are not seen. The wound is treated exactly like any other wound, on aseptic principles, the bones being held in place as usual. Union thus results without suppuration, and a cure is completed in one-half the time, with over fifty per cent less mortality than was the case previous to the introduction of aseptic and antiseptic surgery.

The first thing in event of a compound fracture is to render the parts aseptic as soon and as completely as possible. This may be done by a thorough scrubbing with tincture green soap and water for five or ten minutes, and then, after washing off the soap, with alcohol, to thoroughly scrub the skin adjoining the wound with some one of the disinfectants mentioned under the heading of Sepsis and Asepsis; as, for instance, corrosive sublimate, one part to two thousand parts of water. The wound is to be dressed precisely as any wound, and is to be so arranged that access may be had to it for future dressings. When skin and flesh are much torn they may be sewn together with a needle and thread or silk which has been boiled five minutes. The stitches are to be removed from the fourth to seventh day. The bones are to be approximated just as in simple fractures, and splints applied.

Formerly the mortality of compound fractures was very high, owing to the invasion of the tissues by germ-life, but since the introduction of antiseptic measures in surgery, the death rate has fallen so markedly as to be a matter of great pride to surgeons and the world at large.

In cases where the wound does not allow of good coaptation, and much mangling of the tissues has occurred, it may be well not to suture the parts, but to dress them with some antiseptic gauze drainage, and do them up like an open wound.

Time Required for Uniting Different Bones.

FRACTURES of the arms unite sooner than those of the legs.

The ribs and collar-bone unite with tolerable firmness in about a month; those of the arm in six weeks; of the thigh and leg in eight weeks. I only mean the firmness derived from the provisional callus.

A broken bone will unite much sooner in a healthy person than in an unhealthy one; much sooner in a young than in an old person.

As a general rule, the apparatus should be kept on thirty days in the case of children; forty days in that of adults; and much longer in that of aged persons.

False Joint.

THE union of a broken bone is sometimes prevented by a frequent moving of the limb. The ends of the bone, having failed to grow together, will sometimes become rounded and smoothed, uniting only by a kind of ligament, and acquire the habit of sliding upon each other, and thus form what is called a *false* or *artificial joint*,—the limb being permanently capable of bending to some extent, at the place of the fracture.

Fractures of the Skull.

THESE are always dangerous in their nature, and the aid to be derived from surgery is much less than in other fractures. If a fracture of the skull produce deep sleep and snoring, and the patient does not show any symptoms of pain when pinched, etc., we are to infer that a piece of bone is pressed down upon or into the brain.

In this case, if the position of the blow be known, a cut is to be made through the skin, two or three inches long, down to the bone. If arteries bleed, they must be taken hold of with a pair of forceps, and tied with a silk thread, the ends of which are to be cut off. The bone being well exposed by one or two incisions, the piece which is pressed down upon the brain is to be raised with a chisel, or some similar instrument, to a level with the other bones. The surface must then be cleansed antiseptically, the hair around shaved off, the skin brought together, and the cut edges reunited by sticking plaster.

When the inflammation appears, twenty-four hours after, it is to be kept down by doses of from five to ten drops of tincture of *veratrum viride*, given every one or two hours.

Fractures of the Bones of the Nose.

INJURIES of this kind may generally be rectified by passing a strong probe up the nostril, and pressing out the bones to their natural place, at the same time using the fingers on the outside to prevent their being pressed out too far. Inflammation must be kept down by cloths wet in cold water and laid on, and by light diet.

Fracture of the Lower Jaw.

THIS usually takes place near the chin. It may occur also near

the angles of the jaw. It may be simple or compound, and is known by the pain, the swelling, the inability to move the jaw, the indentation felt by the finger, the irregularity of the teeth, and the grating sensation felt while moving the jaw with the hand placed on the back fragment.

Treatment.— Let one or both thumbs be introduced into the mouth. With these, keep the back part of the jaw stationary, and pull forward the fore part with the fingers on the outside. In this way the fracture can soon be put right. This done, shut the mouth firmly, and place a thick compress of lint over the broken part; over this put a piece of pasteboard, wetted so as to bend easily to the parts, and over this a strong bandage of muslin, two and a half inches wide, with a small bag to fit and hold the chin; all which is represented in Fig. 159.

For a fortnight the patient must feed on gruel, broth, arrow-root and milk, that the jaw may not be displaced by chewing.



FIG. 159.

Fracture of the Collar-Bone, or Clavicle.

THIS accident generally occurs about the middle of the bone, and is generally caused by falls on the arm and shoulder.

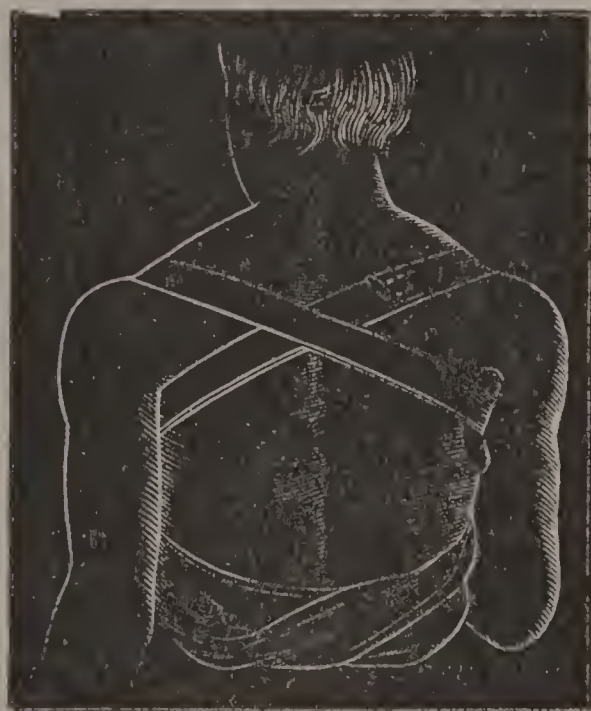


FIG. 160.

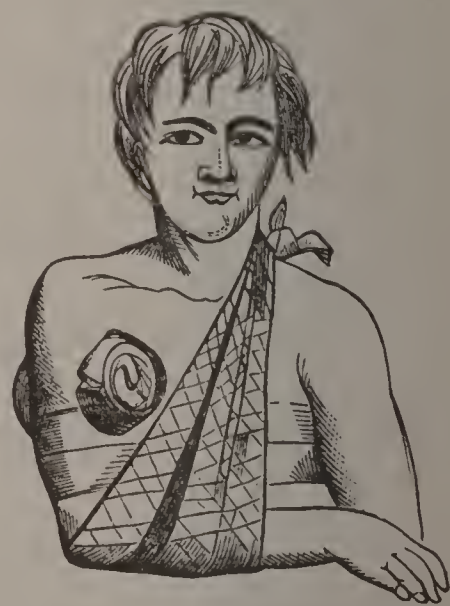


FIG. 161.

Symptoms. — Pain and tenderness at the place of the injury, and inability to lift the arm; a small bunch or prominence at the point of the fracture; the distance from the point of the shoulder to the breast-bone shorter than on the other side; and the dropping downwards, forwards, and inwards of the shoulder. To make the case sure, *compare* the two bones, and see whether they agree.

Treatment.—Place the knee between the shoulder-blades, and grasping the round ends of the shoulders with the two hands, draw them gently back till the ends of the bone come to their proper place; or place the elbow of the patient close to the body, and a little forward, and then push it upward.

To retain the shoulders in this upward and backward position for some weeks, pass a flannel bandage, four inches wide, around the front of one shoulder, under the arm-pit, across the back, over the opposite shoulder, under the other arm-pit, and again across the back, in the form of the figure ∞ . To prevent the bandage from cutting the skin, put pads under the arms. (Figs. 160 and 161.)

Fracture of the Shoulder-Blade.

WHEN this accident happens, the body of the bone is generally broken across by some great direct violence. In a few instances, the end next to the collar-bone is broken.

Symptoms. — Great pain in moving the shoulder, and the *grating* sensation which may be felt by placing one hand on the upper end of the bone, and moving the lower portion with the other.

Treatment. — A bandage must be passed round the chest, and a few turns be made around the upper arm, so as to fasten it to the side, and prevent all motion. Purging, low diet, and the tincture of *veratrum viride* will be required to keep down inflammation.

Fracture of the Acromion, or the end of the scapula which unites with the collar-bone, may be known by the flattening of the shoulder, — the broken part being drawn down by the action of the deltoid muscle.

Treatment. — It must be supported by the same bandages as are used for a fracture of the collar-bone; and the elbow must be well raised, so that the head of the upper-arm bone may be lifted against the upper portion of the scapula, and act as a prop to keep it in place. No pad should be put in the arm-pit, for this would push the broken part too much outward. Gentle motion of the arm may be begun about the sixth week.

Fracture of the Upper-Arm Bone.

THE bone of the upper-arm is most frequently broken near the centre, though it may be fractured near the ends. It may be known by taking hold of the arm above and below the suspected fracture, and attempting to move the ends of the upper and lower fragments upon each other. If there be a fracture, the grating of the broken ends against each other will either be heard or felt. The arm will also be bent and helpless; and if the ends of the bone be slipped by each other, it will be shortened.

Treatment. — Let a powerful man take hold of the arm and pull gently and gradually, but with considerable force, till the arm is brought to its natural length, another man taking hold of the body of the patient, and pulling in an opposite direction. In the mean time, the surgeon is to adjust the ends of the bone to each other, and apply a bandage, but not very tightly, from the elbow to the shoulder, and over this, four splints, with pads under them; one in front, reach-



FIG. 162.

ing from the shoulder to the bend of the elbow, with a few turns of the bandage over it; another behind, reaching from the shoulder to the point of the elbow, with a few turns of the bandage around it also; another on the inside, extending from the arm-pit to the inner projection of the bone at the elbow, also secured by a few turns of the bandage; and the fourth one on the outside, reaching from the shoulder to the outside knob at the elbow. The whole is now to be secured either by a bandage or tape. (Fig. 162.) The arm is to be confined to the side, and the hand and fore-arm placed in a sling. In from seven to ten days, the dressing should be taken off to see if all is right.

Fracture of the Elbow.

THIS may be known by the patient being able to bend the arm, but not straighten it, and by the grating which may be heard or felt when the arm is moved back and forth by the operator, and also by the severe pain felt in the fractured part.

Treatment. — First apply leeches and evaporating lotions to reduce the inflammation. When this is effected, straighten the limb, and apply a bandage snugly from the fingers to the elbow. The broken end of the bone must now be brought to its place, and the bandage continued over it, and for a few inches above it. Secure it here, and bring it back, — carrying it above and below the elbow for several times; and then extend it up to the shoulder. A splint must now be applied to the inner side of the arm to prevent its being bent, extending from the hand nearly to the shoulder, and another, of similar shape, to the outside. The joint should be kept quiet for four or five weeks, during which time the splints may be taken off three or four times, to see if there is any chafing of the skin, or any disturbance of the bones.

Fractures between the Elbow and Wrist.

THE part of the arm between the elbow and wrist, called the *fore-arm*, has two bones, — one extending from the elbow on the inside to the wrist at the root of the little finger, called the *ulna*, and the

other on the side next the thumb, a shorter and a smaller bone, and called the *radius*.

When both these bones are broken at the same time, the fracture may be easily discovered; when only one, the sound bone keeps the other in place, and the injury is not so easily made out.

Treatment. — Relax the muscles by bending the elbow, and then, by extension and counter-extension, put the ends of the bones in proper place; then place two splints, thickly padded in the centre, one upon the front of the hand and forearm, and the other upon the back of the hand and forearm, — the palm of the hand being turned, not towards the chest, but downwards. They are to be covered with a bandage from the fingers to the elbow. The whole arm and hand should be placed in a sling, and remain in this position four or five weeks.

Fractures of the Wrist, Hands, and Fingers.

THE setting of fractured bones in these parts is to be done by extension and counter-extension, as in the case of other bones.

If the wrist be broken, a splint should be applied in front and one behind, and a bandage bound tightly from the hand half way to the elbow.

In fracture of the bones of the hand, a pad or compress must be put upon the palm of the hand, and a splint placed over this, with a bandage extending from the wrist to near the ends of the fingers.

If one finger only be broken, apply narrow pasteboard splints on four sides, and cover them with a narrow bandage; and then bandage the whole hand.

In all these fractures, place the hand in a sling. About three weeks will be required for the bones to unite properly, and several weeks more for the parts to acquire their natural usefulness.

Fracture of the Ribs.

THIS accident occurs either by blows, or by being crushed between two opposing forces. One, two, or more ribs may be broken at a time, according to circumstances.

Symptoms. — A fixed, piercing pain, made worse by breathing, coughing, or any other motion, and also a grating sensation during the taking of a long breath, the hand being laid upon the injured part at the time.

Treatment. — The ribs are to be held steadily in their place by pressure. To effect this, request the patient to draw in a long breath, and hold it. While the ribs are swelled out in this way, and the broken ends are thus brought to their proper place, pass a woollen bandage, five or six inches wide, several times tightly around the chest, from the arm-pits to the pit of the stomach. This will confine

the muscles of the chest, and the breathing will have to be done with the muscles of the belly, and the ribs will thus be kept still, and have a chance to grow together.

If the pleura be wounded, and inflammation follow from this or other cause, the patient must be confined in bed, kept on a low diet, and his pulse be kept down by tincture of *veratrum viride*. The bowels should be emptied by recipes 18, or 10, or 27, or 41, both to subdue inflammation, and to give the diaphragm a chance to drop down freely.

Fracture of the Breast-Bone.

Symptoms. — The injured part is frequently either sunk down or raised up; there is difficult breathing, cough, spitting of blood, pain, inability to lie on the back, and a grating noise caused by breathing.

Treatment. — The same as that for broken ribs. Should the broken part be pressed down upon the lung, so as to cause serious difficulty of breathing, an incision may be made, and the broken piece raised up with a chisel, or stiff case-knife, or some similar instrument.

Fracture of the Haunch-Bones, or Pelvis.

THESE fractures are dangerous, — being often connected with some other injury, as tearing of the bladder, lower bowel, or great veins or arteries. Fortunately, however, they are only caused by some great violence, and do not often occur.

Treatment. — Place the patient in the easiest possible position, and keep him entirely at rest. Generally a catheter should be kept in the bladder, that the water may pass off easily; and the whole hips should be bound round tightly with a flannel or calico bandage, and made as firm and fixed as possible, to keep the broken bones together. The most perfect rest must be ordered for six weeks or two months.

If the extreme lower end of the sacrum, the *os coccygis* (Figs. 8—3) be broken, the separated portion must be put in its place by introducing the finger into the rectum; and the bowels must be kept loose by gentle physic, that the broken bone may not be pushed from its place by the pressure against it of hard stools.

Fracture of the Thigh-Bone.

THE points where this bone are broken are at its upper portion or neck, and near its middle. The break at this latter place may be straight across, or oblique, — partially lengthwise. When oblique, the point of the bone may stick into one of the large muscles, and be made fast by it.

Symptoms. — The fracture in the middle of the bone, if it be transverse, may be known by some swelling or irregularity discovered by

running the hand along the thigh, and grasping it here and there; and if it be oblique, the ends of the bone will be drawn by each other, and the limb will be shortened.

Treatment. — Place the patient on his back, and let two strong men use extension, — one taking hold near the hip, and the other grasping the limb at the knee and pulling steadily and strongly till the limb is of the proper length, and the ends of the bone are in their place. The man who takes hold of the upper end of the limb may hold it more firmly and with less fatigue by passing a folded sheet around the groin.

The extending force being still continued, the operator is now to apply the splints, which are to be four in number, — one in front, reaching from the knee-pan to the groin; one behind; one on the inside, from the upper part of the thigh to the inside of the knee; and a fourth one, about four inches wide, reaching from the arm-pit to a distance of two or three inches beyond the sole of the foot. Cotton must be placed under these splints to prevent their injuring the skin, and they must be of a width to nearly, but not quite, touch each other. These being properly adjusted, and the extension still continued if the fracture is oblique, the bandage is now to be firmly applied from the foot to the upper part of the thigh, and then passed a few times around the body. This fracture is sometimes treated without splints, as represented in (Fig. 163).



FIG. 163.



FIG. 164.

Six or seven weeks will be required for the bones to grow together,

during which time the patient will need to lie upon his back. But the dressing may now and then be taken off and put on again.

Sometimes only a single long splint is used; sometimes no splint; in still other cases, four splints, — the outside one being short, and the limb resting on a double inclined plane.

Fracture at the Neck of the Bone. — When the bone is broken at the neck, close to the hip-joint, the injury is known by the knee and foot turning *outward*, and by the limb being an inch or two shorter than the other (Fig. 164). This is an accident to which old persons are particularly liable. When the bone is broken here, it seldom grows together again. The union which is formed is generally by a ligament.

Treatment. — This requires a very long splint, reaching from the armpit to beyond the sole of the foot, and bound firmly with a bandage, as in fracture in the middle of the thigh. The limb should be kept extended, and the injured one must be bound to the other by a bandage, keeping both legs straight and immovable. A broad leather strap, bound firmly round the hips and thighs will be serviceable.

Two or three months will be required for the injury to become repaired, so that the limb may be used. The patient must get up cautiously, and be careful not to use the limb much so long as pain is produced.

Fracture of the Knee-Pan.

THE knee-pan (patella) may be broken up and down, or across; — the latter fracture is the more common. It is a troublesome fracture, and is very apt to leave a *stiff knee*.

Symptoms. — When the bone is broken across, the patient cannot stand upon the limb; the leg may be flexed or crooked, but cannot be straightened, the upper part of the knee-pan is drawn up away from the lower portion, leaving a wide gap, into which the fingers may be laid, — at the top and bottom of which the rough edges of the movable bones may be felt.

Treatment. — First, reduce the inflammation by tincture of arnica, leeches, etc. Then straighten the limb, and put a well-padded splint behind, to keep the knee motionless; place the patient's body in a half-sitting posture, and raise the foot considerably above a level. Put a bandage over the splint, beginning half way up the thigh, and extending down to the knee-pan, and being made very tight just above the broken bone, so that it cannot easily slip under it. The broken bones must now be brought together, and the bandage be passed below and again above the knee several times in the form of a figure 8, to keep the bones from parting.

The bandage, generally, may not be removed for a fortnight. After this period, if everything has gone on well, the limb may be carefully bent a little every day, to avoid a stiff knee.

Fracture of the Bones of the Leg.

THE *leg* is that part of the limb between the knee and ankle. It has two bones; the smaller on the outside, called the *fibula*; the larger on the inner and front side, called the *tibia*, or shin-bone.

One or both of these may be broken at the same time. If both are broken, it is impossible to walk upon the limb; there is a change in its shape; it may be bent; and the grating of the broken ends of the bones may be felt or heard.

Treatment. — First, adjust the bones by means of extension and counter-extension, as in other fractures. Then apply two splints, one on the outside from the knee to the sole of the foot; the other upon the inside. Over these a bandage is to be firmly applied, reaching from the toes to the knee. The leg may rest upon the side or the back, as the comfort of the patient may require. Upon the side is generally the easiest position, with the knee a little bent (Fig. 165).



FIG. 165.

The dressing may be removed in six or seven days, to see that the bones are in their proper place. Five or six weeks will be required for recovery; and at the end of this time, the dressing may be laid aside. But the patient must use his leg very gradually.

In the treatment of fractures of the shafts of the bones of the lower extremities, three indications should be fulfilled: First, coaptation and fixation of the fragments; second, moderate extension; third, gentle compression and support. Provided these requirements are carried out, it matters little what apparatus may be employed; but that which can be applied with the least disturbance of the fractured bone, and is most comfortable to the feeling of the patient, should be preferred.

The best mode of extension and counter-extension now in use is by raising the foot of the bedstead about eight inches, by a block of wood placed under each fore-leg. This makes an inclined plane, and the body consequently tends to incline towards the head of the bed; this is the counter-extension.

Then extension is made as follows: A strong piece of adhesive plaster, about two and one half inches wide and about three feet long, is applied to the sides of the leg, extending from a little below the knee, leaving a loop under the foot four or five inches long. This is secured firmly in place by a bandage to the whole length of the leg. A piece of cord is fastened to the loop and passed over a pulley, which is fixed to the foot-board of the bed. To the other end of this cord is attached a weight. This need not exceed ten or twelve pounds.

In this way we get our counter-extension and extension: the body is drawing one way and the weight is pulling the other all the time.

This is a simple and comfortable way of treating fractures of the shafts of the bones of the lower extremities which require extension. It may be applied to the different fractures of the neck of the thigh bone, to fractures of the shaft, and also to fractures in the shafts of the bones of the leg

It is the best and most effectual way of preventing undue shortening that we have in use, and what is of as great importance to the patient, a most comfortable way of keeping the painful limb in the proper shape.

The object of this weight is to cause extension and counteract the pull of the muscles, and paralysis is caused by the weight used in proportion to the size of the patient, his age and muscular development. After two or three weeks use of the weight recommended, namely twelve pounds or so, it is desirable to diminish the weight by degrees until such time as the weight can be dispensed with entirely, which is usually after four or five weeks, and the splints themselves may be allowed to remain three or four weeks longer. In the impacted fracture, which variety occurs when the main part of the broken bone is forced into the lesser fragment, no unusual motion is present. This form of fracture is very common in the aged and it may result in some permanent displacement and lameness, but the best treatment is not to break up the impaction which would be done in a younger patient, as in the aged a fracture after being changed from an impacted to a simple one might not unite readily. The treatment then for this class of cases, especially after sixty or seventy years of age, would be to let the leg lie quietly in bed with heavy oblong bags filled with sand placed on each side of the limb to prevent motion until the bones are set and healed in the new location.

Fractures of the Bones of the Foot.

THESE are to be treated in the same manner with fractures of the hand. They are often attended with much other mischief, as laceration of the flesh, ligaments, etc. Hence, cutting off the foot, or a part of it, is often necessary. Pasteboard splints are frequently used in these fractures. If matter forms, it must be let out by opening the parts.

A useful and simple expedient that may be used in all fractures and, in fact, any troubles of the lower extremities where dressings are needed, is the building of a cradle to prevent the clothes coming in contact with the injured parts.

This may be made by taking three laths or thin strips of wood about an inch wide, one-eighth to one-fourth inches thick and from two to four feet long, nailing three or four half barrel hoops at right angles to this piece and equal distance from one another, so that when placed on the bed and encircling the leg, the clothes will be kept away and pressure averted. This arrangement is desirable during the heat of the summer months.

Compound Fractures.

IN many simple fractures, as, for instance, a fracture in the shaft of the lower leg and in certain selected cases of breaks at the ankle joint, the use of plaster of Paris casts enables the patient to go around somewhat with the use of crutches, when if using the splints it would not be advisable to allow him to leave the bed. This bandage may be made by taking thin meshed cheese-cloth, about four inches wide and three or four yards in length, spreading it out on a board and winding the bandage tight after rubbing plaster of Paris on the surface of the cloth. These are then ready for application after being entirely covered by water for two or three minutes or until the bubbles of air cease to rise. After the fracture has been in splints long enough to be sure that all swelling has ceased subsiding or surely will not increase any more, the temporary splints which have been used to hold the parts in position may be removed and a thick dressing of sheet wadding may be wrapped around the limb. Over two or three thicknesses of the wadding the prepared plaster bandage is then rolled. These may be smoothed over and the limb held in proper position until the plaster is set, which usually takes fifteen to twenty minutes. Absolute inability to move the joints and broken bone can now be assured if the plaster has been put on in the proper manner, though care must be taken in the application of this as in any bandage not to stop the circulation, and a pulse must be sought for beyond the bandage, that is, on the side of the bandage farthest away from the heart. These bandages may be left on from two to three weeks if the leg does not become loose inside of that. Then the bandage should be cut down lengthwise from top to bottom with a sharp knife, care being taken not to go through suddenly and injure the leg. The use of cider vinegar will make the plaster cut more easily.

When, in connection with a broken bone, there is a wound of the flesh, which leads to, and communicates with the space between the broken ends of the bone, the whole injury is called a *compound fracture*. The wound in the flesh may be caused by the same force which breaks the bone, as a bullet from a gun, or a cart-wheel, or some machinery in which the limb is entangled. Quite often the flesh wound is caused by one of the ends of the bone being forced through the flesh and skin.

But, however caused, a compound fracture is of a much more serious nature than a simple one; and it is particularly dangerous when a joint is involved. It is more serious above the knee and elbow than below, and more to be dreaded in the lower limbs than in the upper.

Treatment.—An attempt should always be made to preserve the limb; it should not be cut off, unless the compound fracture is of the worst kind. But if there be no hope of saving the limb, the

amputation should be performed at once, while the constitution is tranquil, and before it has been shocked and injured by suppuration, abscesses, and sepsis, which sometimes follow such grave injuries.

But, suppose it be determined not to cut the limb off,—as it generally should be,—the first thing is, after the bone is set, to close the wound against all entrance of air, and to cause it to heal by the first intention, that is, without suppuration. To do this, one method is to cover the wound with lint dipped in blood; but the more usual mode is, to bring the sides of the wound together, and secure them very carefully by strips of adhesive plaster, in the same way as in common cuts. The bandage should be kept wet with cold water, by squeezing a sponge over it, or by sprinkling cold water upon it as fast as it becomes dry.

It will be necessary, in this case, to keep the bed-clothes away from the limb while it is thus wet, which may be done by cutting a barrel hoop in two, and nailing it to two pieces of lath. There should be air circulating under the sheet, that the heat of the inflammation may not keep the limb in a steam bath.

Should the wound heal by the first intention, the danger will soon be over, and the treatment may be the same as for simple fracture. But this, unfortunately, does not always occur.

It occasionally happens, that after three or four days, the patient grows restless, has very short and disturbed sleep, is hot and thirsty, has headache and shivering fits, is more ill towards evening, wanders in his mind, or becomes delirious, and perhaps dies in ten days or a fortnight from the sepsis or blood-poisoning that has taken place. If the symptoms are a little less severe, the wound will at first discharge a small quantity of dirty, bloody matter, which, if everything goes well, will, by degrees, change to healthy matter, without smell, of a straw-color, and about as thick as cream.

The fever, and other bad symptoms, will now subside; the sleep and appetite come back, and a new process begins, that of healing by *granulation*, or the formation of new flesh to fill up the gap made by the wound.

For old persons, or those whose health has been broken, this stage is full of danger, and is apt to result in death, if the lower limb be the injured part.

If the constitution proves unable to bear up against this stage of the injury, alternate heat and sweating set in, the face is flushed with a pink color, the pulse becomes weak and quick, the body wastes, the appetite disappears, the tongue becomes dry and brown, restlessness, wandering, and delirium follow in quick succession, and all are speedily terminated by death. With the setting in of these symptoms, the wound stops discharging, or throws out only a thin, watery and stinking matter. Quite often the skin and other parts mortify, and if there be strength enough to throw off the dead parts, the broken ends of the bone stick out, looking dead and white.

When the constitutional symptoms begin, open and thoroughly disinfect the wound and provide for free drainage; a poultice may also be used if much pain be present. The poultice must be continued till the wound is filled with new flesh nearly to the surface.

It must be said in justice to modern surgery, that, if antiseptics are used at the first dressing of the wound, we expect union by first intention, and the avoidance of pus formation with all the dangers this entails. The wound is to be treated just like other fresh wounds, aseptically; the limb may then be done up like a simple fracture, but the dressings should be so arranged as to allow of subsequent inspection. (See article on Asepsis, etc., p. 572.)

Dislocations. — Luxations.

THE surfaces where two bones meet and glide upon each other for the purposes of a joint, are called *articular surfaces*, and the union is said to be an *articulation*. These surfaces are covered by a smooth cartilage, to render their play upon each other easy.

The joints are held together by cartilaginous straps and ligaments, which serve as pulleys; by the aid of these, the joints turn back and forth, as a door opens and shuts upon its hinges.

When by some external violence, or the weakening of these ligaments, these surfaces are suddenly separated, or forced apart, there is said to be *dislocation* or *luxation*.

Joints are divided into two kinds, the ball-and-socket (orbicular), which has a rotatory motion, as the shoulder, hip, thumb, — and the angular, or pump-handle (ginglymoid), as the elbow and knee.

The ball-and-socket joints have a greater diversity of motion, and are more exposed to dislocation. They are likewise more easily put in their place.

In a Primary Dislocation, the bone is thrown at once into the place where the surgeon finds it.

The Secondary Dislocation is one in which the muscles pull the head of the bone still further from its natural place than it was thrown by the first shock of violence.

A Dislocation is Simple when there is no wound penetrating the synovial membrane.

It is Compound when attended by such a wound.

A Dislocation is Complete when the articular surfaces are entirely separated.

It is Incomplete when the separation is only partial.

Recent Dislocations are rectified with comparative ease.

Old Dislocations are hard to be repaired, and sometimes cannot be reduced at all.

The Symptoms of Dislocation are, inability to use the joint; the head of the bone being felt in an unnatural place; the limb shortened, lengthened, or distorted; a change in the shape of the joint, etc.

Simple dislocations are generally trivial. Compound dislocations often render amputation necessary, and are always perilous.

Aged persons are less liable to dislocations than the young.

When a dislocation and a fracture occur at the same time, the dislocation is to receive attention first.

A dislocation is to be reduced by a *gradual* and *continuous* extending force. The reduction is known by the limb recovering its natural length, shape and direction, and by its being able to perform certain motions which are not possible while in a dislocated state. The pain is immediately reduced upon reduction taking place. In shoulder and hip dislocations, the head of the bone makes a loud noise when it slips into its place.

Dislocation of the Lower Jaw.

GAPING very wide is the usual cause of this. It has been known to result from a mere yawn. One or both sides may be disjoined.

Symptoms. — If but one side is dislocated, the chin is twisted to one side, and immovable, and the jaws are partially open; if both sides, the mouth is wide open, the chin projects, there is a hollow in front of each ear, great pain, inability to speak, and dribbling of spittle from the mouth.

Treatment. — To effect a reduction, cover the thumbs with a towel or a piece of wash-leather to prevent their being injured by a sudden snapping together of the jaws, and then, standing in front of the patient, introduce them into the mouth, press them upon the crown of the back lower teeth, at the same time lifting the chin with the fingers.

After the jaw is set, it should be kept bandaged for a few days, — the bandage being merely passed once or twice over the top of the head, and under the chin. No solid food requiring chewing should be taken for a short time.

Dislocation of the Collar-Bone.

THIS may take place by the end attached to the breast-bone slipping *over* or *under* that bone, or by the *other* end slipping *above* or *below* the bone to which it is attached. When the first named end of the bone slips *over* the breast-bone, it is said to be a *forward* dislocation; when it slips *under* the breast-bone, it is *backward*. In this latter form of dislocation, the end of the collar-bone sometimes presses upon the gullet, and prevents swallowing.

Symptoms. — In the *forward* dislocation of the inner end of the bone, a *bunch* may be felt by the hand at the top of the breast-bone;

in the *backward dislocation*, a *depression* or *hollow*. The *upward* dislocation of the *outer* end of the collar-bone may be known by the flattened and sunken condition of the shoulder.

Treatment. — To put the bone in its place in the first of these accidents, draw the shoulders back, by which means the collar-bone (clavicle) is drawn away from the breast-bone (sternum), and easily slips into its place. To reduce the dislocation at the other end of the bone, place the knee between the patient's shoulder-blades (scapulæ), and draw his shoulders *backwards* and *upwards*. After the reduction, support the arm in a sling.

Dislocation of the Shoulder-Joint.

THE head of the long bone of the arm (humerus) may be displaced in three different directions, — *downward*, into the arm-pit (axilla); *forward*, under the muscles of the breast; and *backward*, upon the back of the shoulder-blade.

It is recognized by the shoulder losing its roundness, and becoming flat; by the lengthening of the arm; by the head of the bone being felt in the arm-pit; and by severe pain.

To effect the reduction in the first form of displacement, put the patient on a bed, or upon the floor. Put one heel in the arm-pit, against the head of the bone. Then, taking hold of the arm above the elbow, or at the wrist, pull steadily, and push with the heel. (Fig. 166.) The extension may be more steady and powerful by a double towel around the surgeon's neck.



FIG. 166.

If the reduction cannot be effected, relax the muscles by a warm bath or by etherization.

A simpler method often succeeds and is the only one required in certain forms of shoulder dislocation. Bend the elbow at right an-

gles and place it at the side of the body. Next rotate the fore-arm outward as far as possible; then carry the elbow, still flexed, inward and upward onto the chest, and then allow the elbow to fall. The head of the humerus often slips into place with the greatest of ease.

After the reduction, a sling will be required, and three weeks' or a month's rest.

Dislocations of the Elbow-Joint.

OF these there are six varieties. In the first, both bones of the fore-arm (radius and ulna) are thrown *backwards*; in the second, both are drawn *backwards* and *inwards*; in the third, both are thrown *backwards* and *outwards*; in the fourth, the *ulna alone is forced backwards*; in the fifth, the *radius is forced forwards*; and in the sixth, the *radius is thrown backwards*.

In general, these dislocations are all easily set. In the first four, the knee is to be placed at the bend of the elbow, and the fore-arm bent upon it, the surgeon grasping the upper arm with one hand, and the fore-arm with the other. In the dislocations of the radius, the upper arm is to be put in a *fixed* condition, while the surgeon takes hold of the hand and pulls, at the same time throwing the bone forward. If the luxation be backwards, there must be the same extension and counter-extension, while the fore-arm is bent.

Treatment. — The fore-arm must be placed in a half-bent position, and a splint should be bandaged upon the front of the whole limb, compresses being placed upon the head of the bones opposite the direction of the dislocation. This confinement must be continued three weeks.

Dislocations of the Wrist.

THESE are caused by falls upon the hand. Both the radius and ulna may be thrown *backwards* or *forwards* upon the wrist, causing a projection either in front or behind. (Fig. 167.) The bones are to be set by pulling in opposite directions upon the hand and the forearm, and pressing laterally, if the displacement be at the side of the wrist.



FIG. 167.

Treatment. — Put a straight splint on the front, and another on the back of the fore-arm and hand, with compresses on both sides of the wrist, and a bandage over the whole. Support the fore-arm in a sling, and keep down inflammation by cold water, cooling lotions, etc.

Dislocations of the Bones of the Hand.

SOME one of the carpal bones may be pushed up out of its place,

so as to form a projection on the back of the hand. To put it in its place, press upon it simply, and then put compresses on the front and back, with straight splints upon these and a bandage over all. Put the hand in a sling.

Dislocations of the finger-joints may generally be replaced by bending the displaced phalanx over the head of the bone from which it has been disjoined. Sometimes a good deal of extension and counter-extension are required, for which purpose a piece of cord may be wound around the finger, — the skin being protected by covering it with a piece of wetted buck-skin.

Dislocations of the Hip-Joint.

THESE are four in number, — *upwards, downwards, backwards and forwards, forwards and upwards.*

To reduce these, a greater amount of power is needed than in the dislocations of any other bone, — owing to the greater power of the muscles which are to be overcome.



FIG. 168.



FIG. 169.

Dislocations of this joint are often confounded with fracture of the head and neck of the thigh bone. This latter may be distinguished from the luxation by the grating sound to be heard, by the possibility of pulling the limb out to its natural length, and by its being shortened up again by the action of the muscles the moment the pulling is given up.

The Upward Dislocation of the head of this bone upon the back of the haunch-bone is known by the *shortening* of the limb, and by *the knee and foot turning inward*, — the foot lapping over the opposite foot, and the great toe resting upon the other instep. (Fig. 168.)

The Dislocation Downward is known by the *lengthening* of the limb, the projection of the knee, *the turning of the foot and knee outward*, and the bending of the body forward. (Fig. 169.)

The Dislocation Backward and Upward is distinguished by the *inclining of the foot and knee inward*, the drawing up of the heel, and the resting of the great toe against the ball of the great toe of the other foot. (Fig. 170.)

The Dislocation Upward and Forward is known by the shortening of the limb, and the *turning of the foot and knee outward*. (Fig. 171.)

For replacing the bone, put the patient upon a table, on his back. Draw a sheet between his thighs, and extending it up by the side of his body, let it be fastened to a staple. Put a padded belt, with rings attached, around the injured limb, just above the knee. To these



FIG. 170.



FIG. 171.

rings, fasten one block of a pulley, and attach the other to a post, giving the pulley-rope to an assistant. The surgeon now, standing on the injured side, directs gradual extension to be made, while he, by his hands, or by a band passing around the injured thigh and over

his own shoulders, lifts the head of the bone, and guides it into its socket. Etherization is not infrequently required.

Treatment. — Keep the patient in bed for two weeks or more, with his knees tied together by a strip of muslin, and a broad belt around his hips.

Dislocations of the Knee-Pan or Patella.

THIS bone may be thrown *outward*, causing a great projection on the outside, and an inability to bend the knee.

It may be thrown *inward*, causing the same impossibility to bend the knee, and a projection on the inside.

To restore the bone to its place, put the heel of the patient upon the shoulder of an assistant; then press down the edge of the knee-pan which is farthest from the centre of the joint, thus tilting up the other edge of the bone, when the muscles, aided by a lateral pressure, will draw it to its place.

Treatment. — Put a straight splint upon the back of the limb, and make moderate pressure upon the knee by a bandage. Cold water, or cooling washes, should generally be applied. Keep the patient in bed two weeks.

Dislocations of the Knee-Joint.

THERE are four of these, — *forward, backward, inward and outward*.

They are readily corrected by extension and counter-extension from the ankle and thigh, and pressure upon the head of the displaced bone.

Treatment much the same as for displacement of the knee-pan.



FIG. 172.



FIG. 173.

Dislocations of the Ankle.

THESE may occur in a *forward*, *backward*, *outward*, and *inward* direction. (Figs. 172 and 173.)

To rectify it, bend the limb, so as to relax the muscles on the back of the leg; then, while extension and counter-extension are made upon the foot and thigh, press firmly on the dislocated bone, and thus force it to its place.

Treatment. — Confine the foot and leg in splints made of thick pasteboard, soaked in hot water and moulded to the shape of the limb, with a foot-piece at right angles. Keep the patient in bed five or six weeks, and when he begins to walk, support the ankle with a roller bandage, or a laced gaiter.

Contusions. — Bruises.

WHEN any blunt, hard substance comes in violent collision with the soft parts of the body, without breaking the skin, the injury received is called a *bruise*. One of these accidents generally ruptures a great number of the very smallest blood-vessels, which let out blood under the skin, producing "*black and blue*," or livid spots (ecchymosis). What *fist-fighters* call a *black eye* is an example.

Treatment. — Cold applications at first to prevent the blood running out of the small vessels under the skin. After the inflammation has subsided, stimulating applications, as vinegar and water, alcohol, camphorated liniment, ammonia and alcohol, equal parts, and sometimes bandages.

Sprains.

A *SPRAIN* is a forcible wrenching and twisting of a joint to such a degree as to stretch and more or less lacerate the ligaments of the part, and sometimes to break a tendon, but without entirely displacing a bone. Its symptoms are, violent pain, swelling, and discoloration of the parts from the blood running into the cells under the skin. In elderly persons, the effects of sprains are very tedious, disabling them for many weeks, or even months.

Treatment. — Elevate the limb, keep the joint perfectly quiet, and apply cold lotions or fomentations. When the inflammation is all past, apply stimulating liniments, and bandages, or shower the part with cold water.

When first done, put the part, if possible, into as hot water as can be borne and maintain it there for half an hour, then strap the part moderately tight with plaster. An ice-bag applied over a joint when the hot water cannot be obtained, or is inapplicable, is nearly as efficacious.

Ruptures of Tendons.

THESE accidents are known by a sudden snap, followed by pain, loss of motion in the part, and swelling and discoloration.

Treatment. — Place the part in such a position as to relax the broken tendon, the ends of which must be brought together, and retained in contact till they grow together. They are to be sewn aseptically and the wound treated like any closed wound.

Diseases of the Bones.

THE bones are supplied with blood-vessels and nerves ; and as they live and grow like other parts of the body, so they become diseased and die in like manner.

Ulceration of the Bones. — *Caries.*

BONES, like the soft parts, when attacked by violent inflammation, may ulcerate, discharge matter, and heal by granulation ; or, having lost a portion of their substance, may sink under entire disorganization and death. This disease passes, in some parts of the country, under the name of “fever sore.” It is generally the result of poor blood, scrofula and like disease, and hence needs tonic, constitutional as well as local treatment, cod-oil, iron, etc.

Treatment. — Apply splints, and keep the part in a state of absolute rest. Subdue the local inflammation by the usual means. If the disease arise from scrofula or syphilis, use the remedies for those diseases.

Periostitis.

THIS term includes periostitis proper which is comparatively rare by itself, as this term means simply an inflammation of the outside lining of a bone named the periostium, and includes the inflammation of the bony substance called osteo periostitis and the marrow of the bone called osteo myelitis. They usually result from cold, blows, contusion, strains, adjacent inflammation, as very old ulcers, or from special constitutional diseases such as syphilis, tuberculosis or pus in the system called pyæmia. The symptoms may be very mild in the beginning, especially if the cause is not one of injury. Pain and swelling, usually of a deep boring character like a gimlet being screwed into the bone, occurs and is worse at night. The parts are extremely tender, often reddened and inclined to leave an impression of the finger when pressed upon.

Treatment. — It is very desirable to have absolute rest of the part at first and the application of heat or cold, whichever is more agreeable,

may be used; should destruction of the tissue go deeper, the treatment will be prompt incision and letting out the pus that is making the trouble. Poultices, hot antiseptic solutions and irrigation to wash away the old dead discharge may prevent death or necrosis of the bone, which will require a more extensive operation.

Death of the Bones. — *Necrosis.*

THIS is like mortification of the soft parts. It occurs from injuries and inflammation of the periosteum.

It is known by dull, deep-seated — sometimes acute — pain; and is followed by increase of size, from the formation of new bone around the old, — the old being gradually broken into pieces, and discharged through external openings.

As blood poison may often result from absorption of dead bone tissue that has not had a proper outlet, it is usually the best treatment to make an incision over a swelling in bone troubles, should pus be suspected. If made under the antiseptic conditions already advised, the improvement will be noticed when the pus escapes, and the local condition, which is severe enough looked at from any direction, will remain as it is and not go into a general body infection which may cause death or lead to amputation at a much higher level than would have been the case.

Treatment. — Poultices and quieting fomentations. Resort will generally be made to surgery.

The greater the amount of bone involved the larger amount will have to be removed, and as no healing may be expected, as long as any infective material remains, all bone that is in any way diseased must be scraped or even chiseled away. Nature is very kind in restoring bone and if only the outside shell of the large bones, like the tibia or shaft of the lower leg, remains, it will fill in by granulation and make a sound bone.

Unnatural Growth of Bones. — *Exostosis.*

THIS disease consists either of a tumor of a bony nature, growing upon and arising from a bone, or an enlargement of a bone. It springs from the periosteum, or from the surface of a bone, or from its spongy texture. The enlargement or the tumor may be white and hard, like ivory, or dark-colored and spongy, or a mixture of the two.

At first, a tumor of this kind is not attended with pain or inconvenience. It comes on slowly, and sometimes remains nearly stationary for several years.

Treatment. — If the tumor be large and inconvenient, remove it with the knife. If not, use local pressure with pads and bandages; also leech, blister, and restrict the patient to a spare diet.

Diseases of the Joints.

SOME of these diseases begin in the cartilages, some in the synovial membrane, and others in the heads of the bones.

Disease of the Hip-Joint. — *Coxalgia*.

THIS generally consists in inflammation of the synovial membrane and capsular ligament of the hip-joint, ending frequently in ulceration and destruction of the head and neck of the thigh bone.

The symptoms are fullness in the groin; pain, which is increased by motion; aggravated when the limb hangs without touching the ground; is more felt in the knee than in the hip itself; and shoots down along the inside of the leg, as far as the instep. The thigh inclines forward, and the limb has the appearance of being longer than the other, — though in the latter stages, it is really shorter.

Treatment. — Before suppuration takes place, apply leeches and blisters, and enjoin perfect rest. After suppuration, keep the patient upon his back, on a mattress, and mould to the parts thick paste-board splints, with pads, and give tonics. Keep the bowels open with senna and bicarbonate of potash, and rub the parts with iodide of potassium ointment, or with preparations (282), (283), (195). The disease being scrofulous, the iodide of potassium (140) may be taken with advantage internally. The disease occurs for the most part in children. They should be put on a long splint from the very first and the joint kept immobilized.

White Swelling. — Synovial Degenerations.

THERE are several diseases of the knee-joint, characterized by swelling and white color from tension of the skin, which have passed under the common name of *white-swelling*. The diseases are not strictly the same, but as they all affect the knee, and have symptoms to some extent in common, it is well enough to group them under the same title, — especially as one treatment is adapted to all.

One is a pulpy disease of the synovial membrane. It begins with a trifling stiffness, and a slight swelling. The swelling increases by degrees, and on touching the part there is a sensation as if it contained fluid. By and by the cartilages ulcerate. The disease is incurable, as the synovial membrane is finally converted into a pulpy substance, and the limb has to be amputated.

Another of these is inflammation of the synovial membrane, beginning with ulceration of the cartilages. It begins with pain in the joint, which is severe at one point, and attains its height in a week. In a day or two, the joint is swollen from a collection of water.

Treatment. — Splints and entire rest, as in all chronic diseases of

the joints. Also a generous diet, and whatever is calculated to build up the health. For the tubercular variety an injection of iodoform dissolved in glycerine is most commonly used.

Bunions.

THIS is an inflammation, enlargement, and hardening on the inside of the ball of the great toe. It is frequently connected with a distortion of the toe, which seems partially out of joint. The projection of the joint exposes it to great irritation from the shoe, and to repeated attacks of inflammation. It occasions great suffering.

Treatment. — Remove the pressure from the part, and when there is inflammation, keep the foot quiet and elevated upon a chair, applying leeches, poultices, etc. Another method is to cover the bunion



FIG. 174.

with soap-plaster, spread on thick, soft leather, or, put the toe in a separate compartment of the stocking, like the finger of a glove. Then enclose it in a separate part of the shoe, which is contrived by fixing

a piece of firm sole-leather in the bottom of the shoe, so as to make a separate compartment for the toe. By this means the pressure against the side is removed. Sticking plaster may be spread on wash-leather, and a piece cut out the size of the bunion. This will take off a portion of the pressure of the shoe, and will hasten the cure.

Fig. 174 represents a ganglion or tumor formed upon the synovial sheath of the tendon which bends the finger.

Whitlow. — Felon. — *Paronychia*.

THIS is an abscess of the fingers, of which there are three kinds, — the first situated upon the surface of the skin, the second under the skin, the third within the sheath which contains the tendons of the fingers, and sometimes involving the covering of the bone.

The latter form of the disease is the most terrible, and begins with redness, swelling, and a deep-seated and throbbing pain, which gradually becomes so excruciating as to banish all sleep, and nearly drive the patient to distraction. Finally matter forms and burrows in the deeper parts of the finger, and at length finds an opening, which brings relief.

Treatment. — Carry the hand in a sling; apply a leech or two, and use poultices. A poultice made of equal parts of powdered slippery-elm bark, poke-root, ground flax-seed and lobelia-seeds, mixed with hot ley, and changed twice a day, is an admirable application.

When these methods fail to stop the progress of the abscess, the finger should be laid open with the scalpel, cutting down to the bone. This will give vent to the matter, and the wound may be dressed with poultices, until the inflammation is subdued, and the healing process is well established, when some simple salve may be applied.

Stiff Joint. — Anchylosis.

THIS is of two kinds, *complete* and *incomplete*, — complete when the bones of the joint have become firmly united by bony matter, and incomplete when the motions of the joint are very much interrupted, but not entirely destroyed. The first is the result of ulcerations of the cartilages of the joints, and of the heads of the bones; the latter, of fractures, sprains, bruises, thickening of the synovial membrane, and weakening of the muscles.

Treatment. — No treatment is of much use in the first-named form of the disease. By sawing through the bone, and then daily moving the limb back and forth, a false joint may be made, but it is apt to grow together again, and finally defeat the purpose of the surgeon. When, however, stiffness arises from the weakening of the muscles, and some other causes involving the ligaments and tendons, something may be done by daily frictions with stimulating liniments, champooing, and warm fomentations; and by gently bending the joint back and forth, several times every day, as much as can be done without pain.

Tumors.

A TUMOR is a swelling which consists of a *new production, not constituting any portion of the original structure of the body*. There are several kinds of tumors; but it is sufficient for my purpose to follow Mr. Ferguson, and divide them into the *malignant* and *non-malignant*.

Cancer.

THIS belongs to the class of malignant tumors. It has two stages. The first is that of *induration* or *scirrhus*, during which it has, under the finger, the feeling of *stony hardness*. The second stage is that of *ulceration* or *open cancer*.

Cancer most often attacks the female breast, the skin, the mucous membranes, the tongue, the stomach, the neck of the womb, the lips, etc. It rarely occurs in subjects under thirty years of age, and not often in persons under forty-five.

The Symptoms of Cancer, when it appears in the breast, are, a puckered condition, and dull, leaden color of the skin; a hard, knotty, and uneven feel; and occasionally sharp pains. When it attacks the skin and mucous membranes, there is a hard, warty lump, which

ulcerates, after a time, producing an open sore, with a hard base. (Fig. 175.)

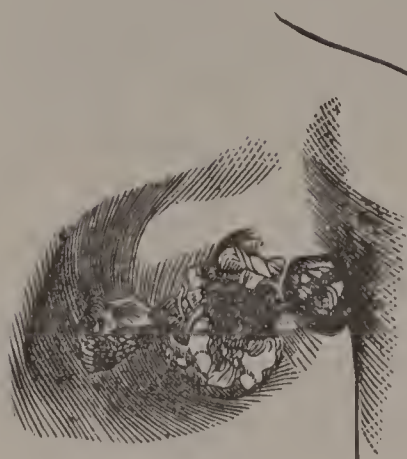


FIG. 175.

The sore of a cancer discharges an irritating, excoriating matter, which has a peculiarly fetid odor, so offensive and so different from any other smell, that it is seldom forgotten. The bones of a cancerous person break with great ease. Unmarried females are much more liable to the disease than the married. The cancerous growth is composed, in part, of cells, rounded or caudate, containing, as seen under the microscope, nuclei,

younger cells, and granules. (Fig. 176.)

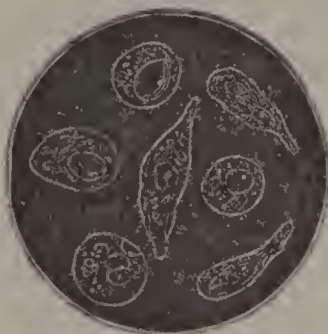


FIG. 176.



FIG. 177.



FIG. 178.

The difference between these cells and those of common pus-globules may be seen by comparing Fig. 176 with 177,—the latter being pus-corpuscles highly magnified by a powerful microscope. Fig. 178 represents pus-globules not so much magnified.

Treatment. — There are but two methods of treatment which promise any success. The first is to extirpate the tumor by a surgical operation before the disease has so far invaded the constitution as to be sure of returning. The other is that adopted by Dr. J. W. Fell, an American physician, who was permitted to try his remedies in one of the English hospitals, and who drew from the surgeons in charge of it a favorable report of the results.

Dr. Fell's remedies are mainly blood-root and chloride of zinc (336) made into a paste. The skin over the tumor is first destroyed, and this paste, spread upon strips of linen, is applied. This causes an eschar, into which incisions are made, half an inch apart, taking care to avoid the living tissue. The same paste spread in a like manner is then daily inserted into the furrows. By this means, which is original with Dr. Fell, the effect of the caustic penetrates through all parts of the tumor, causing the whole diseased mass to fall off, and leave a healthy, granulating surface.

In incipient cancer, where the disease has not made much progress,

Dr. Fell uses the above, which he calls a brown ointment (336), and in connection with it an ointment of the iodide of lead (337), using each twelve hours. With these, he claims that he cures incipient cancers with great readiness. He also employs, internally, half-grain doses of pulverized blood-root (143), with arsenic and cicuta.

Dr. Fell claims that with these preparations, he has often cured *lupus*, and has been very successful with them in treating indolent ulcers. Of late a new treatment has sprung up—namely, the injection of anti-cancer serum, but as yet a definite opinion cannot be given as to its results. The latest remedy that holds out any hope is in the use of the x-ray, Finsen light, or radium. The action of this agency will be explained at the end of this chapter. It is not possible that they can be successful in deep seated cancers at the present state of their usefulness, and it may be said that the hopes that were at first held out for them, together with the anti-cancer serum are not being fulfilled; but their success has been brilliant in certain varieties, especially skin cancers and *lupus*.

Soft Cancer. — Bleeding Cancer.

Medullary Cancer. — Encephaloid Tumor. — Fungus Hematodes.

THIS varies in size from that of a nutmeg to a child's head. Its color varies from white to deep red. At times it is soft and elastic at first; at other times, it is firm and tense. The patient is wan and pale from the beginning. The parts do not ulcerate, as in scirrhus; but after the skin is broken, a spongy, bleeding tumor protrudes.

Treatment. — Dr. Fell's method.

Black Cancer. — Melanosis.

THIS is an organic disease, in which the tissue of the disordered part is converted into a black, hard substance, which is converted into ulcerous cavities. This often appears in the lungs, and is met with in the liver and other parts.

Its symptoms are, a sallow complexion, great debility, and dropsical swelling of the limbs before the termination.

Treatment. — When it appears externally, Dr. Fell's treatment is worth a trial. When in the lungs, the inhalation of tincture of blood-root and solution of chloride of soda (241) should be used. Two teaspoonfuls may be put in a Vapor Inhaler,—the instrument being filled half full of hot water,—and inhaled ten minutes, three times a day; the blood-root pills (143) being taken at the same time.

Fatty Tumor. — Lipoma.

THIS is the most common of all the forms of tumor. These bodies

generally have a soft and doughy feel, or as if filled with wool. They are the least inclined to become malignant, and consequently the least dangerous, of all the tumors. Whatever pain there is, is caused by their size, weight, and pressure. They are occasionally found a little below the point of the shoulder, in the deltoid muscle of females, and are caused by the unreasonable pressure of the dress at that point.

Treatment. — They should be removed by an operation, which is easily performed, as they separate very readily from surrounding parts, shelling out of the capsule that surrounds the tumor like an egg from its shell.

Polypus.

THE *polypi* constitute a class of tumors growing from mucous membranes. They are of two kinds, — the *soft, jelly-like* polypus, and the *fleshy* or *fibrous* polypus.

The Soft Polypus, which grows from the nose, has not much feeling, and is not particularly disposed to bleed.

The Fleshy Polypus is firmer and harder than the preceding, and most generally connects itself with the womb.

Treatment. — Both kinds of polypi are either twisted off with a pair of forceps, or strangled by putting a string, called a ligature, around their neck, which will cause them to fall off in a short time.

Piles. — Hemorrhoids.

THESE venous swellings often cause so much pain and trouble, are so often chronic and unyielding to medical treatment, that surgical interference becomes now and then a necessity. The operation for their relief and cure is an extremely common one, and nowadays is limited to a very few different methods.

The *carbolic acid* treatment which has found favor with many consists in the injection into the pile of a small amount of carbolic acid dissolved in glycerine or water. The process is simple and almost painless, especially if done after numbing the parts with a three per cent cocaine solution. The carbolic coagulates the blood and albumen of the tissues and causes a death of the parts with a subsequent sloughing and puckering. The advantage of this procedure lies in the ability of the patient to be up and about. The danger lies in the risk of setting free a clot in the circulation, causing most serious consequences and even death. It should be used only in selected cases and then not too freely. Not over a stronger solution than two per cent. in strength should be used.

A second method, and by far the oldest, is to encircle the pile with a *ligature* and allow it to eat through, thus destroying the pile and

causing it to heal behind the ligatures. This method is painful, requires ether and necessitates rest in bed. A third way is to burn off the pile by means of a *cautery and clamp*. It is far preferable to the ligature, requiring but a few days' stay in bed, and is less painful. A fourth, and the most scientific method, is one just coming into prominence, and consists in *dissecting out the pile area* and sewing the flaps of mucous membrane and skin together.

Numerous washes, ointments, and lotions have been used to temporize, but the only sure and thorough way to treat obstinate piles which remain after continued and unsuccessful attempts to remove the original cause, is to remove them once for all. The following salve will be found useful: cocaine, eight grains; gall ointment, half an ounce; mix. Smear well over the piles and then push them up into the bowel. Piles should always be returned into the bowel when possible; this of itself, when practicable, oftentimes constitutes a cure.

Whenever a small, round, hard pile is seen on the outside and is very painful, it should be incised, after numbing with a cocaine solution, and the clot turned out. This simple and painless procedure works great relief and often a cure.

The bowels are to be kept open daily by a solution of the citrate of magnesia (one-half bottle), which keeps the bowels loose and causes no pain in defecation.

Wens. — *Encysted Tumors.*

THE most common situation of these is under the skin of the head. A wen is simply a sac full of various matters, which, when examined with a microscope, are found to be oil-globules, epithelial cells, and crystals of stearine. These contents are secreted by the internal surface of the sac. They sometimes look like curd or rice, sometimes like suet, and sometimes like honey. In other instances, they are mere water, and they have been known to consist of hair or horn. These tumors are round, elastic, and movable, and are without pain. They grow slowly, but steadily.

Treatment. — The attempt to excite inflammation and consequently absorption, by punctures, setons, or injections, are dangerous, and ought not to be resorted to. If the tumor is small, its opening, indicated by a small black spot, may be found, a probe be introduced into it, and the contents of the sac be squeezed out; and this may be repeated as often as necessary. But the proper and only real remedy for these tumors is their removal by a surgical operation, which, under aseptic rules, is painless, easy and sure.

Aneurisms.

AN aneurism is a tumor formed by arterial blood, and communicating with an artery. A *true aneurism* is formed by the coats of an artery getting weakened by some cause, and swelling out so as to form a pouch or sac. (Fig. 179.) There are other kinds of aneurisms, which need not be described.

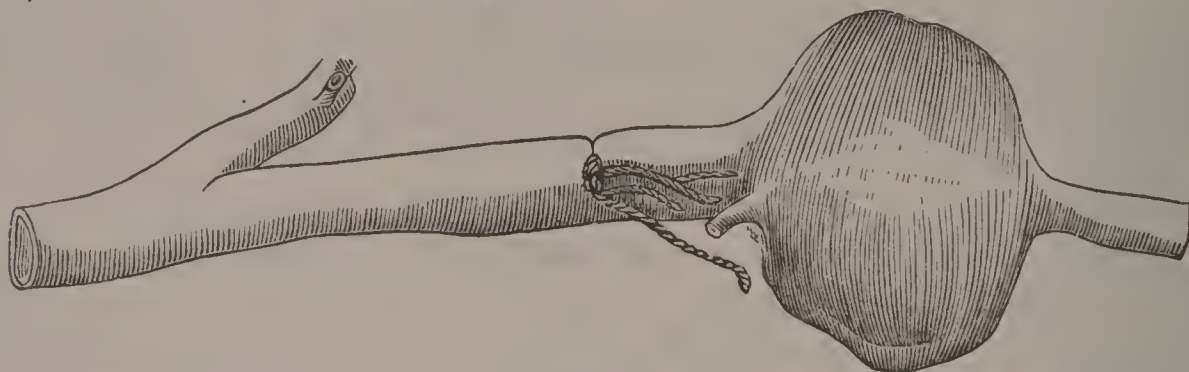


FIG. 179.

Symptoms. — An aneurism may be felt as a tumor somewhere along the course of an artery, and it beats under the finger like the pulse. The beating is caused by a fresh quantity of blood being pushed into this sac with every stroke of the heart. If it be small, pressure on the artery above it will so far shut off the blood from it, that it will feel flaccid or soft. The patient will often say that the tumor began to appear after some violent strain, when something appeared to give way. In the chest, aneurism will produce an unnatural pulsation felt by the patient. In the belly, it may generally be felt as a tumor through the abdominal walls.

Distinction. — Tumors which lie directly over arteries are lifted up every time the blood is driven along under them, and hence they pulsate like aneurisms; but they *do not pulsate when small*, whereas aneurisms do from the beginning of their growth. Aneurisms are *soft at first, and hard afterwards*; whereas tumors are generally hard at first, and finally soft.

Treatment. — In some few fortunate cases, aneurisms get well spontaneously. If the flow of blood through them can be stopped, that which is within them will coagulate, forming a hard tumor, which will gradually waste away. To cure them, therefore, we must stop the circulation through them; and this may be done, in some cases, by compression. The pressure upon the artery must of course be above the tumor, and should not be so great as to stop the blood altogether, but only very materially to *diminish* its flow. The pressure is applied by an instrument having two pads, an arc of steel, a joint in the middle, and a screw by which the padded extremities are pressed together. (Fig. 180.)

When this mode of treatment is not practicable, the artery must be tied between the aneurism and the heart. The patient should be placed in bed, with the limb wrapped up to preserve its temperature,

and placed in an easy position. Nothing cold should be applied to it.

The force of the circulation should be reduced by the tincture of veratrum.

Bronchocele. — Derbyshire Neck. — *Goitre*.

BRONCHOCELE is what is called an *endemic* disease; which means, *a disease which prevails in certain localities*. This complaint is prevalent in Nottingham and Derbyshire, England, among the Alps, and especially in the Tyrol and valley of the Rhone. It is thought to be produced by the use of melted snow, and water impregnated with lime and earthy matter.

Symptoms.—A prominent, soft, elastic tumor, occupying the front of the throat, in the situation of the thyroid gland, and like it in shape. It is not tender, and the skin is not discolored. In old cases, the tumor becomes hard. In Fig. 181 the tumor is so large as to have pushed the gullet to one side.

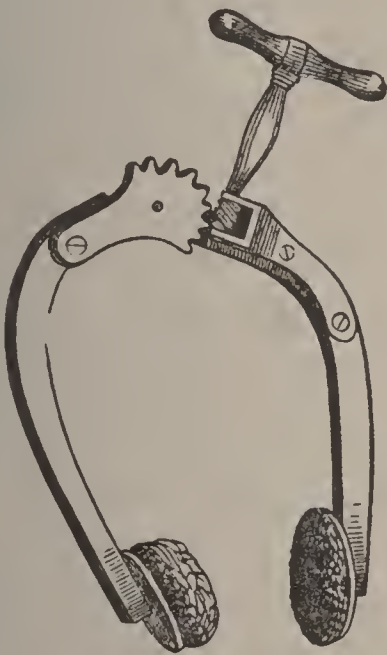


FIG. 180.



FIG. 181.

Treatment.—The usual and perhaps the best remedy for this disease is iodine. It may be given as iodide of potassium, with a bitter or some other article (138), (145), (101). An iodine ointment may be applied to the tumor (185).

The patient should move away from the infected district, and reside, if possible, upon the sea-coast.

The use of the thyroid gland of the sheep given in 5-grain tablets is the best treatment which can hold out any promise of cure.

Water in the Scrotum. — *Hydrocele*.

As the name shows, this is a collection of water in the scrotum or bag which holds the testicles.

Symptoms.—It presents a swelling, shaped like a pear, smooth

on its surface, fluctuating if pressed, without pain, but causing a little uneasiness by its weight. On placing a lighted candle on one side of the scrotum, the light may be seen through it.

Distinction. — This complaint may be distinguished from a solid enlargement of the testicle by its not being so heavy, solid, or painful, and by its fluctuating and being transparent; from rupture, by its forming slowly instead of suddenly, by the swelling beginning at the lower part of the scrotum instead of the upper, and by the enlargement not being increased by coughing as it is in rupture.

Treatment. — In children, strong scattering washes (353) are sometimes successful. But most commonly a number of punctures are made with a large needle, to cause the fluid to escape into the cell tissue of the scrotum, whence it is removed by absorption.

To effect a radical cure in grown persons, the surgeon is to grasp the tumor behind, and introduce a trocar and canula into the sac, — being careful to point the instrument upwards, so as not to wound the testicle. The trocar is then withdrawn, — the canula being at the same time pushed well into the sac, so that none of the fluid may get into the cell-tissue outside the sac. The fluid runs off through the canula. When this has all escaped, some stimulating fluid, as common lime-water, or, still better, tincture of iodine, is to be injected through the canula into the emptied sac. After retaining this from two to five minutes, it is permitted to flow out. Inflammation follows, which breaks up the secretion of water, and effects a cure in two or three weeks. The amount of fluid thrown in should be about one or two teaspoonfuls of a mixture of one part of tincture of iodine and two parts of water. If the first operation does not effect a complete cure, it may be repeated. The most successful of all treatments, however, is to open the scrotum and dissect out the greater part of the tissue which covers the testicle and which secretes the fluid.

A suspensory bandage which, by relieving the weight from the spermatic cord will cause great relief, is desirable and in early cases may prevent the troubles becoming serious enough to warrant operation.

Blood in the Scrotum. — *Haematocoele.*

THIS is a collection of blood in the scrotum, from some injury.

Treatment. — If the quantity of blood effused be small, cold applications may cause it to be absorbed. If it be large, make a puncture, and apply a poultice for the blood to ooze into.

Acute Inflammation of Veins. — *Phlebitis.*

THE veins are subject to attacks of acute inflammation, which constitutes a very dangerous, and often fatal, disease.

Symptoms. — Fits of shivering, or perhaps fainting, a rapid pulse, anxiety of countenance, lowness of spirits, catching pains about the heart, and *swelling, redness, tenderness and hardness along the course of the affected veins*. Sometimes the tongue is furred brown or black, the skin is sallow, there is bilious vomiting, low delirium, and death. In cases less rapid, there are great swelling and redness over the diseased veins, and abscesses form, which, when opened, reveal clots of blood mixed with pus. Or, the patient, while remaining low, with a sallow countenance, and a yellow tongue, will complain suddenly of intense pain in some joint, as the knee or shoulder, — in which there will be a rapid formation of pus; a similar suppuration will follow in other joints, as well as in the lungs, etc., until the patient sinks, and dies of exhaustion.

Treatment. — Apply leeches freely over the inflamed veins, — also fomentations. Every abscess should be opened early. Keep the bowels moderately open with some preparation of salts, and allay pain and restlessness by morphia. Support the strength by beef-tea, etc.; and, if the pulse be feeble, give wine or quinine.

The suppuration may be checked, in this as in other complaints, by drinking freely of chamomile tea. The power to control suppuration has recently been discovered as belonging to chamomile flowers.

Chronic Phlebitis.

THIS is a far less serious disease than the preceding. It generally affects the veins of the legs.

Symptoms. — Tenderness and hardness of the affected vein, with swelling around it, and of the parts below; a general painfulness of the limb. After the inflammation has subsided, the vein feels hard, like a cord, because the inflammation causes the blood within to coagulate, and harden, so that nothing can pass through the vessel.

Treatment. — Leeches, fomentations or cold lotions, as the patient may choose, purgatives and rest, with the limb elevated. Subsequently, when the inflammation seems completely subdued, friction with camphorated oil and bandages.

Enlarged or Varicose Veins. — *Varix*.

THE veins which lie near the surface, especially those of the legs, are apt, by exhausting labor upon the feet, and by strains, to get weakened, so that their valves lose their tone, and their sides stretch and give way in certain places, letting the blood bulge out, and form purple bunches. These bags of blood, lying along upon the surface of the limb, form knotty tumors, looking like blood-boils. They occasion a kind of distress, but no sharp pain.

Persons of weak, soft and relaxed muscles and blood-vessels are

particularly liable to this complaint. It often attacks women in the family way.

Treatment. — Where only a few veins are affected, it may be sufficient, in some cases, to apply firmly over them a few strips of leather, spread with soap-plaster. But generally it is better to support the whole limb with a good woolen bandage, or with a laced stocking, which should be applied in the morning before the patient is up. It is generally well, also, to use friction, with some liniment, or iodine ointment. Lead-water, or alum-water, or an infusion of white-oak bark, may be used with advantage. Burdock and plantain leaves, bound upon the skin, and removed before they are dry, are useful. Showering with cold water strengthens the veins. An elastic silk stocking made for the limb is the best general measure.

Rupture. — *Hernia*.

HERNIA signifies a protrusion of any internal organ from the cavity where it belongs ; but the term is generally restricted so as to mean no more than *a protrusion of the bowel through the walls of the belly*.

When the abdominal walls are weak, from any cause, no matter what, — lifting, straining, or making violent muscular exertion of any kind, will then often cause the bowel to force itself through at the most debilitated spot ; and pushing the lining of the belly, the peritoneum, along before it, a bag or sac is formed, in which the projecting bowel is enclosed, forming an external tumor.

Divisions of Hernia. — Rupture may occur in several different places, and has accordingly received different names.

Umbilical Hernia is a protrusion of the bowel at the umbilicus or navel. This is most common in children soon after birth ; and women who are often pregnant are liable to it.

Ventral Hernia is that which occurs at any part of the belly where other forms of rupture do not appear.

Inguinal Hernia is that in which the bowel protrudes at the groins, or through the abdominal rings.

Scrotal Hernia is that in which the bowel descends into the bag or scrotum.

Femoral Hernia is the dropping down of the bowel behind what is called Poupert's ligament, and appearing as a tumor at the upper part of the thigh.

Reducible Hernia. — Rupture is said to be *reducible*, when the bowel may be put back into the cavity from which it came.

Irreducible Hernia. — Hernia is called *irreducible* when the protruding bowel cannot be returned into the belly.

Strangulated Hernia is that form of the complaint in which the bowel is so pressed upon at the point where it passes through the walls of the belly that it is *strangled* or *constricted* so that its contents cannot pass through.

Symptoms of Hernia. — A soft tumor, which may be compressed, appears somewhere about the belly; and is increased in size when the patient stands up. It also swells when he coughs, or makes any exertion; and grows smaller, or entirely disappears, when he lies down.

Treatment. — In a case of *reducible* hernia, the first thing to be done is to put the bowel back in its place, which is accomplished by gently pressing and kneading the tumor, and swaying it back and forth, — being careful to use no violence, — until it can be pushed within the abdominal walls. It is then to be kept in its place by the use of a truss, made expressly to fit the case. This instrument should be constantly worn by day, and by night, too, if not too irksome; but if worn by day only, it should always be applied before rising in the morning.

Irreducible Hernia may be *palliated* by wearing a truss with a *hollow pad*, which will so evenly and firmly embrace the tumor as neither to irritate it, nor permit any further protrusion or enlargement.

Strangulated Hernia. — If a person has worn a truss for some time, and suddenly leaving it off, makes some violent exertion, either the bowel or omentum is liable to be suddenly forced through a narrow aperture, and to become *strangled*. In such case, the patient has flatulence, colicky pains, a sense of tightness across the belly, and a desire to go to stool, but no ability to pass anything. Then follows vomiting, first the contents of the stomach, then mucus and bile, and, lastly, the fecal matters from the bowels, which are not permitted to pass on to their natural outlet. The neck of the hernial sac now becomes swelled, tender and painful, the countenance is anxious, and the pulse small, hard and wiry; and, after a time, the tumor begins to mortify, the patient expresses himself free from all pain, and soon after dies.

In the treatment, the bowel is to be returned if possible. To do this, the bladder should first be emptied with a catheter, and the patient should lie down with his shoulders raised, and both his thighs bent towards the belly, and placed close to each other, so as to relax all the ligaments and muscles of the belly. The surgeon may now work gently for half an hour, if necessary, trying to put the bowel back, but must be very careful not to excite inflammation by any violence.

If he does not succeed, efforts are next to be made still further to relax the muscles, as well as to reduce the force of the heart's action, and to diminish the size of the tumor. With the tincture or fluid extract of *veratrum viride*, the heart's action and force of the circulation may be reduced to any desirable extent.

To reduce the tumor, apply pounded ice in a bag, or a freezing mixture (354.) If the pain be acute give large doses of opium or morphia. Ether is generally required to reduce a hernia.

If all these remedies fail, there is then no hope but in relieving the stricture by a surgical operation, which must not be deferred too long.

General Directions.—Rupture is an exceedingly common affection. Perhaps every third or fourth person suffers from it more or less. Females, from motives of delicacy, are apt to conceal the misfortune, and not seek advice. This exposes them to danger. Queen Caroline, wife of George II, lost her life by such concealment.

A swelling coming on suddenly in the groin or at the navel, after considerable exertion, may be taken to be a rupture without much fear of mistake.

The complaint being discovered, the bowel should be put back in its place, and a truss be put on at once. In the case of young persons, a truss may frequently effect a cure; but, that it may do this, it should not be taken off, night or day, except to cleanse it, and then only when the wearer is in bed.

Those who can afford it should have two trusses of the same size and strength, so that if one get out of order, the other may take its place while it is being repaired; for an hour's absence of the truss might occasion a mischief which it would require months to repair.

Persons having a rupture must be very careful to keep costiveness at a distance; for straining at stool is highly injurious.

Varicocele. — Cirsocele.

THIS is an enlargement or varicose state of the spermatic veins and may be mistaken for hernia, inasmuch as standing and coughing increase it. But it feels like a bag of worms; and by this peculiarity may be distinguished from rupture.

Treatment.—Wear a suspensory bandage. Have an operation done if this fails to relieve.

Deformities and Irritations of the Spine.

Lateral Curvature.—There are several varieties of curvature of the spine. Some of them are caused by the destruction of some portion of the spinal column by disease. It will not be necessary for me to treat of these forms of curvature, as they can only be investigated and treated by the most skilful surgeons. Those who will use this book chiefly, would hardly think of meddling with them.

The curvature which arises from debility of the bones, ligaments, and muscles, and which is very common among females, has the following

Symptoms. — At first there is a projection of one collar-bone, or one side of the chest, or one shoulder is considerably elevated, and is popularly thought to be "*growing out.*" On examination, the right shoulder and the right side of the chest will be found, generally, to be rounded and lifted up, while the other is sunk down and concave. At the same time, the left hip sticks out, and the loins on the right side have an inward curve. The spinal column will have a curve, as in Fig. 182.

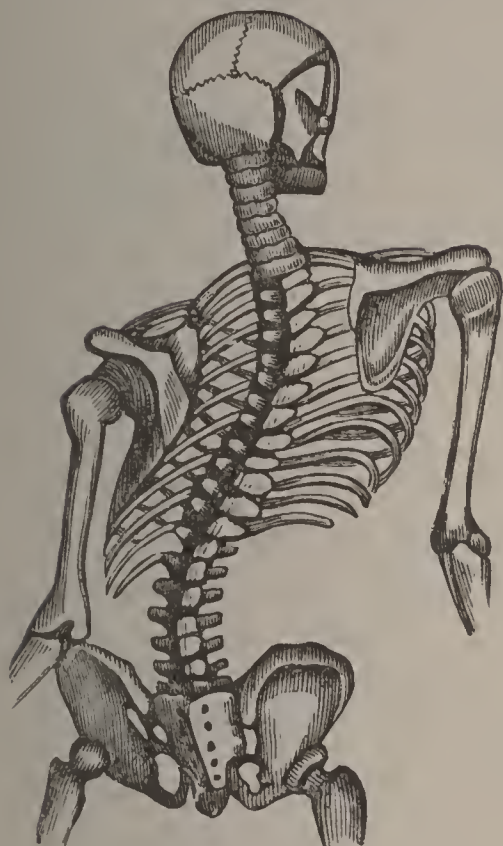


FIG. 182.

Causes. — This affection is caused by occupations which keep the body in a laterally distorted position, and tax one side of the body more than the other. It is produced in children who study their lessons at school with one elbow resting on a high desk. The muscles, too, get so weakened in many females of

luxurious, sedentary and indolent habits, that they cannot hold the bony frame of the body in an upright position, and the jointed column of bones, called the spine, sags down to one side, and draws the whole skeleton of the trunk out of shape.

Treatment. — The first thing to be done is to learn what particular attitude of the body has occasioned the distortion. This discovered, every possible effort is to be made to break up the habit, whatever it may be. If it be standing on one foot, or sleeping on one side, or reading or writing with the elbow high, keep a constant watch and strict rule over the patient.

Exercise in the open air should be free, and taken daily. The use of the dumb-bells is excellent for both sexes; but girls should, in addition, have all the variety of elegant exercise furnished by calisthenics. Wealthy parents, whose daughters are tenderly bred, should *never* let them grow up without the invigoration which these exercises impart.

When the curvature is marked, and the debility considerable, these vigorous exercises should be taken for a time with moderation, and the patient should lie down and rest immediately after taking them.

In many cases considerable benefit is derived from the mechanical support afforded by supporters of various kinds. These are now constructed and adapted to the body, with considerable skill, by those who make their construction a study and a business.

Spinal Irritation. — The spinal column is liable, at certain points, to become congested, and consequently sore and irritable.

Symptoms. — The symptoms of this state of things are very variable and numerous, as all sorts of sensations of the skin, from utter numbness and insensibility up to the most acute sensitiveness, described as creeping, shooting, coldness, tingling and the crawling of ants. There may be neuralgic pains, spasm, cramp, trembling or palsy of the voluntary muscles; or a fixed pain and tenderness in some joint or other part; or palpitation of the heart, dizziness and wind and pain in the stomach.

When any of these symptoms appear, and cannot be traced to any other cause, we are to suspect some irritability of the spinal column, and to search, accordingly, in that direction. The proper method of search is, to make firm pressure on each of the projections of the spine, and to pass over the projections a sponge wrung out of hot water. If there be trouble here, the patient will now be likely to complain of severe pain at some one point. Or, the tender place will generally be found sooner, by tapping with the ends of the fingers, with quick and sharp strokes along upon the projecting bones of the spine. The patient will be pretty sure to wince when the tender point is reached.

Treatment. — Apply leeches, and follow them with a blister, or stimulating liniment, or some strong, slightly irritating plaster, and the tenderness will be very likely to disappear, as if by magic.

Wry Neck.—*Torticollis.*

IN this complaint, the head is drawn over towards one of the shoulders, with the face generally turned towards the opposite side. This is caused by the rigid contraction of a particular muscle. In some instances, however, other muscles are affected, and the head may be drawn in other directions, or be twitched about in various ways.

I had a singular case from New Hampshire, which, though not exactly wry neck, was a kindred disease, and is worthy of being mentioned. The subject of it was a young lady of good physical development, but inclined to nervous complaints. Her head was chiefly drawn over backwards, sometimes so as to lie for a short time flat upon the back, with no power to raise it. She was obliged, ordinarily, to let her head lean a little to one side, and rest upon the hand, in order to keep it steady. When walking, with the head erect, without this support, it was every few moments jerked over backward and a little to one side, the chin being thrown up in a most unseemly way. The case partook of the nature of chorea.

Treatment. — For the genuine wry neck, where the muscle which draws the head to one side is rigid and inflamed, the treatment should consist of leeches, poultices, purgatives, blisters and alteratives. When the muscles causing the distortion are not rigid, electro-magnetism, or the shower-bath may have a good effect. In some cases, strychnine will do well.

The peculiar case mentioned above completely recovered, under the use of the extract of St. Ignatius' bean (95), one pill three times a day, and gradually increased to nine pills a day. She also took iron, and was put upon a most energetic system of out-door exercise. Considering the stubborn and severe nature of the complaint, her complete recovery was as unexpected to her friends as it was gratifying. As the majority of wry neck cases are due to muscular contraction of a rheumatic type, the remedies employed for that disease should be used here. In all cases the hot applications should not be lost sight of.

Foreign Bodies in the Eye.

WHEN a person complains of some substance in the eye, the inside of the lower eyelid and lower portion of the ball should first be examined, the person being directed at the same time to look up. If nothing be discovered there, the patient is then to be directed to look downward. This will expose to view the upper part of the globe. At the same time, the eyelashes should be taken between the thumb and finger, and the lid turned upward over some round smooth thing, as a pencil, which will turn the lid wrong side out, and bring to view whatever is on the inner surface. Any foreign body discovered may be removed by wiping it off with the head of a pin, having a silk handkerchief turned over it. If this fails to detach it, it may be carefully picked up by running under it the point of a wet tooth-pick.

Stye. — *Hordeolum*.

A STYE is nothing more nor less than a small, painful boil at the edge of the eyelid.

Treatment. — In severe cases, apply a poultice; and open it as soon as it begins to point. After it has discharged all it is likely to, apply, on going to bed, for two or three nights, a little diluted nitrate of mercury ointment. Tonics and alteratives are frequently required to break up the formation of styes.

Inflammation of the Edge of the Eyelids.

Ophthalmia Tarsi.

THIS inflammation often involves the Meibomian glands, which then secrete a sticky mucus, which, not being wiped away during sleep, glues the lids together, so that, on waking in the morning, the patient cannot get his eyes open. The complaint is generally chronic and obstinate, lasting a long time. Weakly persons, with disordered digestion, are most subject to it. In some cases the lids ulcerate, and the lashes fall out. Generally the lids are considerably inflamed for a few days, and then, the inflammation subsiding, branny scales, which may be brushed off, form along the borders of the lids, at the roots of the lashes.

Treatment. — The health being generally disordered, needs first to be improved by all possible means, as by alteratives, tonics, bathing, exercise in the open air, travelling if practicable, and a generous diet.

While the lids are inflamed, they should be bathed by a wash composed of sulphate of zinc, twelve grains; laudanum, two drams; and soft water, twelve ounces. The redness and heat having subsided, and the bowels being opened by a gentle dose of physic, an astringent wash should be applied once or twice during the day (208), (209), and a small piece of the diluted nitrate of mercury ointment be rubbed along the borders of the lid, with a pencil-brush at night. This will generally effect an immediate improvement, and in time will bring about a cure.

Disorder of the Lashes.

Trichiasis. — This signifies a growing inward of the eyelashes.

Dystrichiasis. — This is a double row of eyelashes, one of which grows inward.

Treatment. — Pull out the misplaced hairs, and continue to do so as fast as they appear.

Ptosis.

THIS is a falling down of the upper eyelid, from palsy of the third nerve. It is sometimes attended with headache and dizziness, and may be the forerunner of apoplexy.

Treatment. — Begin the treatment with purgatives, and then use every means to improve the health, especially exercise out of doors. As this trouble is the result of one of several diseases, the proper remedy would be that which is applicable to the disease. If due to syphilis, mercury and iodide of potash must be used in appropriate dosage; if due to rheumatism, the different preparations of salicylic acid.

Chronic Inflammation of the Lachrymal Sac.

WHEN the mucous lining of the nasal duct gets thickened and obstructed, the patient complains of great weakness of the eye, which is constantly *weeping*, — the nostril on the same side having a corresponding *dryness*. The tears not passing down through the obstructed duct, collect in the lachrymal sac, and form a small tumor by the side of the nose. By pressing the finger upon this, the tears may be squeezed out through the upward passage, and glairy mucus along with them. There is generally tenderness of the sac, and sometimes redness of the skin. There is commonly inflammation of the mucous membrane lining the eyelids, etc.

Treatment. — The acute inflammation of the sac must be treated by leeches, purgatives, and cold washes.

Chronic inflammation of the sac requires a special attention to the general health. The diet should be carefully regulated, and the alkaline sponge-bath used every day, with brisk rubbing after it. When the sac gets very full, the patient should try gently to force the contents *down* into the nose by pressing upon the upper side of the tumor; and he may promote the same object by strongly drawing in his breath often with his mouth and nostrils both tightly shut. The so-called citrine ointment, full strength, may be applied to the eyelids at bed-time, and a little of prescription (211) may be dropped once during the day into the inner corner of the eye.

Purulent Ophthalmia. — *Egyptian Ophthalmia.*

OWING to the glaring sunshine, and the particles of sand with which the air is loaded, this disease is endemic in Egypt. Hence its name *Egyptian ophthalmia*.

Symptoms. — It begins with stiffness, itching, and watering of the eyes, and a feeling as if there were dust in them. The lids are a little swelled, and become glued together during sleep. The mucous membrane which lines the lids and covers the ball is intensely red and swollen, and discharges a copious quantity of pus. There is a severe burning pain extending to the cheek and temple, with headache and fever. The eyes cannot be opened. It is both contagious and infectious.

Treatment. — At the very beginning, apply a nitrate of silver wash (211) twice a day. With this application, a low diet, and five to ten-drop doses of fluid extract or tincture of *veratrum viride*, every hour, this terrible complaint may often be broken up.

If the disease have reached its height, and there is great fever and headache, the patient may be freely purged (31), and the pain be allayed by cocaine applied with a camel's hair brush.

The patient must be kept in bed, in a dark room, with the head elevated.

The eyes should be frequently washed out gently with warm water, or a decoction of poppies, containing one grain of alum to an ounce. This must be done with a piece of fine sponge, or with a small syringe. Once or twice a day, a few drops of solution of nitrate of silver, two grains to the ounce of soft water, may be dropped in the eyes from a camel's-hair pencil. As soon as the disease begins to give way, the alum in the poppy decoction may be increased a little.

Purulent Ophthalmia of Children.

THIS always begins within a short time after birth, — generally on the third day.

Symptoms. — The edges of the lids at first become red, and glued together, and the membrane lining them is red and rough. The eye

remains closed. The conjunctiva or membrane which covers the globe, next becomes intensely scarlet, and so much swelled, at times, that the lids turn out; and it discharges a thick purulent matter. The child is feverish and restless.

Causes. — Exposure to cold and damp, bad nursing, omitting to wash away from the eyes the cheesy secretions of the skin, and the contact of gonorrhœal and leucorrhœal secretions of the vagina at birth.

Treatment. — Wash out the eye frequently, and gently, with a weak astringent wash (207), (203), or put between the lids once a day, a large drop, with a camel's-hair pencil, of a solution of nitrate of silver, 4 grains, water 2 ounces. When the disease is declining, apply to the lids, with a camel's-hair pencil, the ordinary citrine ointment of the druggist.

Catarrhal Ophthalmia.

Symptoms. — In this complaint, *the white of the eye* becomes inflamed and very red, the redness being superficial, so that the vessel can be moved by pulling the eyelids; generally there is a thin mucous discharge, which, in severe cases, becomes thick and purulent. It is caused by cold and damp.

Treatment. — If there be considerable pain and headache, give purgatives (31), (19), and continue them, once a day, till the symptoms of active inflammation subside. Apply to the eyes a poultice of slippery elm, and bathe them frequently with a decoction of poppy leaves, lukewarm or cold, according to the choice of the patient. Smear the edges of the lids at night with fresh lard; and when the inflammation begins to decline, use diluted nitrate of mercury ointment instead. Keep the eyes well protected from the light with a shade. A large drop of a solution of nitrate of silver, two to four grains to the ounce of water, may be put into the eye two or three times a day. Sometimes sulphate of zinc, four grains to the ounce of water, will do well, or cocaine solution, 4 per cent.

When the disease reaches the chronic stage, — the pain and headache having passed off, — some astringent applications will be required, as a very *weak* solution of nitrate of silver (208), or a dram each of powdered witchhazel leaves and golden seal, steeped for ten minutes in a gill of boiling water, and strained when cold.

Scrofulous Ophthalmia.

THIS disease is chiefly confined to children under eight years of age.

Symptoms. — Entire inability to bear light; the lids are spasmodically closed, and the head constantly turned away from the light. The blood-vessels of the conjunctiva are not particularly injected,

with the exception of one or two large ones which run towards the cornea, and terminate in one or more small opaque pimples. The cornea frequently ulcerates, and the complaint is very obstinate, — being liable often to recur.

Treatment. — As in all scrofulous complaints, it is important in this to look after the general health. No more physic is required than to keep the bowels open; and even this, if costiveness exist, had better be done by bread made from unbolted wheat flour, by injections of cool or tepid water, and by exercise. The health must be supported by iron, sarsaparilla, stillingia, and quinine.

The eye is to be strengthened by cold water applied to the lids, the forehead, and the temples. The eyes may be bathed likewise with a warm decoction of poppies, or of chamomile flowers or cocaine.

But one of the best applications is a solution of nitrate of silver, one or two grains to the ounce of water, a few drops being put into the eye once or twice a day. Occasionally a solution of sulphate of copper, of the same strength, may be used with decided advantage.

Both eyes should be protected by a shade.

Inflammation of the Cornea. — *Corneitis.*

Symptoms. — The cornea is rough, red, opaque, and generally prominent. There is some pain and inability to bear light, but not great. The pulse is frequent, and the skin dry.

Treatment. — If the inflammation be acute, use leeches, purgatives, tincture of veratrum. Apply fomentations, and smear belladonna ointment on the eyebrows.

For the chronic form, give quinine and other bitters, and put blisters upon the nape of the neck, and behind the ears. The wine of opium, and the diluted nitrate of mercury ointment, must be applied to the lids, or cocaine.

Inflammation of the Iris. — *Iritis.*

THE iris is covered with a serous membrane, and is very liable to adhesive inflammation.

Symptoms. — In the first stage, the iris changes its color, and the pupil is contracted. In the next stage, lymph is poured out upon the surface in a thin layer, sometimes, which looks rusty, and sometimes in larger quantities, filling the whole cavity of the aqueous humor.

Causes. — Injuries, or overworking the eye, but more frequently a taint of the system from gout or syphilis.

Treatment. — If there be considerable inflammation, apply leeches to the temples, and keep down the circulation by tincture of vera-

trum. To relieve pain, use continuously either hot or cold water applied on cloths, whichever is agreeable to the patient; these cloths must be changed frequently enough to keep the parts at an even temperature. The strength is generally to be supported by quinine; and in many instances, iodide of potassium is to be given as an alterative. A little solution of atropia, one grain to the ounce of water, is to be dropped into the eye once or twice a day, and the bowels to be kept open by gentle physic. In severe pain give morphia one-sixth of a grain by mouth.

Weakness of Sight. — *Muscae Volitantes.*

THIS is an affection to which persons of weakly constitution are liable, and those who write much, or examine very small objects.

Symptoms. — Dimness of sight; uneasiness on exposure to a strong light; and specks floating before the eyes, — often looking like flies.

Treatment. — The complaint depends on debility, natural or acquired; and tonics, as quinine and iron, and the shower or sponge bath, and out-door exercise, are the proper remedies.

Imperfect Vision. — *Amaurosis.*

THE complaint here referred to is dependent on some change in the optic nerve or the brain, — most commonly the former.

Symptoms. — In some cases the sight becomes suddenly dim, and is perhaps soon lost altogether; but more often it is impaired by slow degrees, — being only defective at intervals, as when the stomach is out of order, or the eyes have been fatigued. At one time, it will begin with objects appearing dim; at another, with their being double; at still another, with the ability to see only one half of objects. In some instances, the complaint begins with a crooked or disfigured or discolored appearance of things looked at. Again it will begin as near-sightedness, or far-sightedness; or the patient cannot measure distances, and will miss his aim in pouring water into a glass, or in putting a match to the wick of a lamp. The flame of a lamp will appear split. At times the eye does not bear light; at other times it longs for it, and objects do not appear illuminated enough.

Distinction. — Amaurosis may be distinguished from cataract by there being no opaque body to be seen behind the pupil; and by the light of a candle appearing discolored, split, or lengthened, or iridescent; whereas in cataract vision is only clouded, and a lighted candle looks as if surrounded with a mist.

Chances of Cure. — These are generally not very favorable, unless the remedies employed very soon produce good effects.

Treatment.—Electro-galvanism is one of the most promising remedies. Bayberry root, dried and reduced to an impalpable powder, and taken as a snuff, is occasionally useful. Cayenne, steeped in water, one grain to one ounce of water, and a little of it dropped into the eye, may stimulate the palsied nerve, and in some cases restore sight.

Blisters may be applied behind the ears, or a seton may be tried upon the back of the neck, with some promise of success.

But probably nothing will do better than cold bathing,—a shower bath if it can be borne,—out-door exercise vigorously pursued, and an adherence for a long time—perhaps a year—to a strictly vegetable diet, at the same time using nervine tonics, etc. (316).

Short and Long Sight.

Short Sight, called *myopia*, depends on *too great a convexity* of the cornea, or crystalline lens, or vitreous humor,—one or all,—and the consequent formation of the image of the object inspected *a little in front of the optic nerve, or retina*,—as at *a* (Fig. 183), instead of at *b*,

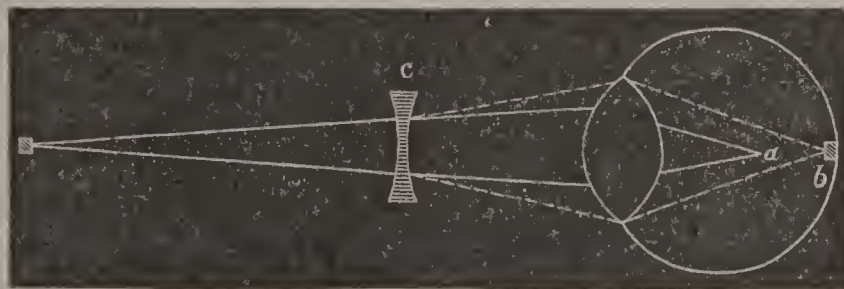


FIG. 183.

where it should be formed. The rays of light are brought to a focus before they reach the retina.

Children are either born with this defect, or it is brought on by too close study, or by long application of the eyes to minute objects.

It may be remedied frequently by exercising the eyes in looking at distant objects. Children afflicted in this way should have their studies abridged, and their exercise in the open air increased. While studying they should have some apparatus applied to them which shall keep the chin elevated, so that the head cannot be dropped too low, and the eyes brought too near the book. And the book should each day be placed a very little further from the eyes.

Glasses worn by persons having this defect of vision should be concave, as at *c*.

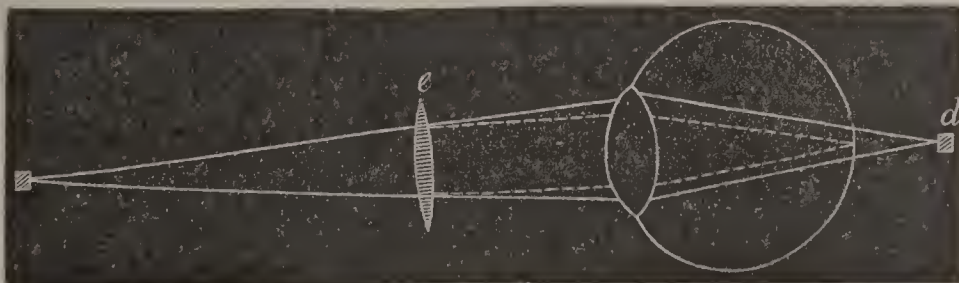


FIG. 184.

Long Sight, or *presbyopia*, depends on the humors of the eye *not being convex enough*. In this case, the image of the inspected object is formed *beyond the optic nerve*, as at *d* (Fig. 184). This is one of the earliest signs of advancing age.

This defect is to be remedied by glasses which are *convex, e*. Persons in the early autumn of life must not resort to glasses too hastily, or, indeed, until they are compelled to, nor should they change those first used too soon. Glasses should make objects look distinct and bright, but not larger than natural.

Squinting. — *Strabismus*.

IN strabismus, the eyes are not parallel in their position and motion.

It is supposed that one eye may become weaker than the other, or that the visual axis of the two may not be adjusted alike, so that one eye — perhaps the more defective one — turns aside to escape the distorted vision, or possibly the injury to itself which would follow the attempt to make eyes of unequal power work evenly together. The opposing muscles lose their counterbalancing force, and the internal rectus, gaining the preponderance, draws the eye *inward*, — for the squint is more often *convergent* than *divergent*; that is, the eye turns *in* more often than *out*. Both eyes sometimes squint.

Treatment. — In recent cases there is some chance of curing this complaint without a surgical operation. The patient should not be in the society of other squinting persons, so as to learn it by imitation.

In the first place care should be taken that the bowels are kept in good condition, and that the general health is well fortified by bathing, tonics, and exercise. The patient should be made to stand before a glass, and while he closes the sound eye, look steadily at some object with the squinting eye. Let him do this till the eye is a little tired; then let him open the sound eye, when the squinting one will turn aside. But by compelling it, in this way, several times a day, to work in a straight line, it may, perhaps, be taught to remain parallel with the other.

Nervine tonics, as strychnine (86), (94), (95), (316), will sometimes do good service; and electro-galvanism has been found useful in many cases.

But in old and obstinate cases, the only cure is found in dividing the muscle which pulls the eye to one side, — the internal rectus, if the eye is drawn in, — the external rectus, if it is drawn out.

Affections of the Ear.

THESE are so common, that, in almost every family, they require attention, at one time or another. And deafness, which so often results from these disorders, is so serious a misfortune that every affection of the ear should receive early attention.

Examination of the Meatus. — For examining the meatus, or external passage of the ear, there is perhaps no better instrument than a simple silver or glass tube, of the size and shape represented in Fig. 185.

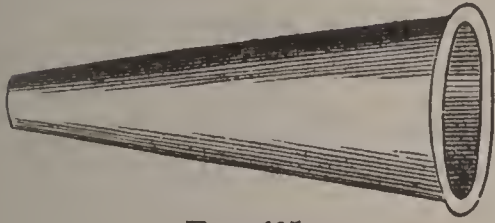


FIG. 185.

To make the examination properly, place the patient either in a sitting, kneeling, or standing posture, as may be most convenient, with the ear directly under a good stream of gas- or lamp- or sun-light. Then take hold of the ear with the thumb and finger, and gently draw it outward and backward, and with the other hand introduce the small end of the tube or speculum, and carry it forward as far as it will go without producing pain. Then by gently swaying the large end of the tube back and forth, a stream of light may be made to illuminate all sides of the passage. If the lining of this passage is smooth, dry, pearly-white, and shining, and is without wax, it may be regarded as healthy. At the close of the passage, the tympanum may be seen, and should be semi-transparent, dry, and grayish-white. Within this may be seen the handle of the malleus, coming from above downward and forward. This bone runs about half way across the tympanum, and divides it into an upper front, and a lower back part. This lower back portion, when viewed through the speculum, is more glistening than the upper and front part, and a bright spot of light is seen on its most rounded portion, which is just below and behind the point of the malleus. Inflammation causes this innermost part of the meatus to become thickened, vascular, or granular, — like the conjunctiva of the eye when it is inflamed; it also causes it to secrete and discharge matter.

Inflammation of the Meatus. — *Otorrhæa.*

THIS is quite a common complaint among delicate children; and may occur as the result of scarlet fever, or be excited by currents of cold air, by rotten teeth, or by deranged stomach and bowels.

Symptoms. — Fever, headache, intense pain in the ear, and swelling of the glands of the neck. After a time, a reddish, watery discharge comes on, which soon grows thicker and mattery. The fever disappears with the appearance of the thick matter. An examination with the speculum shows the whole meatus to be swollen, vascular, and covered with a slimy matter.

Unless great attention be given to cleanliness, the discharge becomes very abundant and fetid, and lasts for a long time; and if neglected, will be likely to lead to very serious consequences, even the decay of some of the bones of the head.

Treatment. — While the inflammation is acute, and there is fever and pain, the diet should be confined to mere liquids, — as rice-water,

gruel, etc., and the bowels should be opened with some preparation of salts, the ear being gently syringed, occasionally, with warm water or decoction of poppies, and being covered with a warm poultice of flax-seed or bread and milk. In place of a poultice, a soft linen bag, filled with bran, and dipped in hot water, may be kept on the ear. If there be great pain and headache, put leeches behind the ear.

The pain and fever being gone, and the *mattery* discharge having come on, the case is to be treated like other *chronic* diseases of mucous membranes in scrofulous constitutions, by tonics, alteratives, warm baths, and out-door exercise.

The ear may now be gently syringed out with castile soap and water, and immediately after with a weak solution of alum, or sulphate of zinc, one grain to a dram. This may be done twice a day. Or, a little of a mixture of two drams of solution of sugar of lead and half a pint of water may be dropped into the meatus, and, after remaining two or three minutes, be allowed to run out. If the discharge be very fetid, two drams of solution of chloride of lime, with half a pint of water, will make a suitable wash with which to syringe it, applying, once a day, a solution of nitrate of silver, five grains to the ounce of water.

Should the discharge stop at any time, and pain and fever come on, lay aside these astringent applications, and go back at once to the leeches, purgatives, poultices and fomentations.

Wax in the Ear.

THE ear sometimes becomes completely filled with wax, mixed with hairs and flakes of scarf-skin, impeding greatly the sense of hearing.

Treatment. — Let the ear be gently syringed each morning with warm soapsuds, so as to thoroughly clear out the whole mass of matter, after having dropped into the ear the night before four or five drops of oil. The water may be quite warm, and a little cotton should be loosely inserted after the syringing.

Earache. — *Otalgia*.

Symptoms. — This is simply *neuralgia* of the ear, and comes on in fits of excruciating pain, which shoots over the head and face. It may be distinguished from inflammation of the ear by the suddenness and intensity of the pain; by its not throbbing, not increasing in intensity, not being attended by fever, and not coming and going without apparent cause.

Treatment. — Fill or remove all rotten teeth, which may be suspected as the cause of the suffering. Give iron, particularly the citrate combined with strychnine (316).

Any hot application will be found to relieve this painful affection without resort to the use of articles more or less dirty that were formerly used. A hot water bottle, hot salt bags, hops steeped in hot water and placed in a bag, or syringing out the ear with very hot water for ten or fifteen minutes, will many times give relief. Heating a small quantity of equal parts of olive oil and laudanum in an iron spoon and pouring two or three drops into the ear, then covering by cotton, is a good remedy.

Inflammation of the Tympanum. — Deafness.

Otitis.

Symptoms. — In the acute form of the disease, there is violent pain, ringing noises in the ear, and delirium. When the suppuration takes place, there is a chill, and a heavy, tensive pain.

In the chronic form of the complaint, the lining membrane of the tympanic cavity has its vessels a little enlarged, with blood sometimes effused into its substance, or lymph upon its surface, or the membrane is thickened, and sometimes covered with tuberculous concretions, or there are fibrous bands occupying nearly the whole of the cavity.

Symptoms. — These are slight, — the first perceptible change being generally *deafness* in one or both ears. There may be a woolly sensation, with noises or ringing, and slight aching pains.

Treatment. — As the deafness in these cases generally depends on a *chronic* inflammation of the tympanic membrane, the best remedies are those which improve the condition of the digestive organs and general health, as regular diet, bathing, pure air, and exercise, with tonics and alteratives. Occasionally, a leech or two, or a blister behind the ear will be serviceable. But generally dry cupping behind and in front of the ear will answer the purpose for calling the blood away from the thickened membrane.

If the inflammation be acute, it must be combatted with purging blisters, poultices and fomentations.

When deafness is caused by inflammation in the Eustachian tubes, or from enlargement of the tonsils, etc., the tonsils must be cut off, and a solution of nitrate of silver, twenty grains to the ounce, must be thrown upon the mouths of the tubes with a shower syringe.

As deafness when due to throat troubles is caused by disturbance of air pressure in the middle ear on account of the eustachian tubes being closed, the object is to make them permeable to air. The Politzer air bag is the best method to accomplish this and consists of a large bulb attached to a rubber pipe which has a small rubber nozzle at the end to insert into the nostrils. The patient holds a swallow of water in the mouth until the operator has placed the rubber

nozzle in the one nostril, and tightly closing the other nostril, he presses the bulb. At the time when the air is forced into the nose, the patient is told to swallow. The action of swallowing causes the throat muscles to close in such a way that the only escape for the air is through the tubes and this is what it was hoped would be accomplished. Another fairly successful method to obtain the same result is named the Valsavaan, after the ear specialist who originated it. This consists in closing both nostrils between the thumb and forefinger and then closing the mouth, forcibly trying to blow the nose. As air cannot escape from the nostrils because they are being held, many times it will go through the tubes.

Bleeding from the Nose.—*Epistaxis*.

Treatment. — In full-blooded persons, with redness of face, and subject to headache and dizziness, bleeding from the nose may be salutary, and necessary to ward off apoplexy, and should not be too suddenly stopped.

When the bleeding is such as to require to have it arrested, plug the nostrils with the scraping from a fur-hat, or with lint, dipped in a strong solution of alum or tannin or Monsel's persalt of iron, one part to ten parts of water. To give immediate relief, press up under the upper lips or apply something cold to the back of the neck.

Ingrowing Toe-Nail.

To most persons, the above words will suggest some unpleasant associations, for there are few but have had some painful experience with this affection. It is usually, like corns and some other troublesome things, the penalty inflicted for wearing tight shoes. It generally appears upon the great toe. The constant pressure of a narrow boot or shoe against the side of the toe, causes the edge of the nail to sink into the flesh, producing inflammation and pain, and finally ulceration. Nature, attempting to repair the mischief, sends out granulations, which, being perpetually irritated, shoot up into unhealthy growths, called *proud flesh*. Thenceforward, the sufferings of the patient become incessant; and he cannot now even compromise, as he would be glad to do, by putting on shoes of ample dimensions, but is obliged to negotiate a peace by putting away the shoe altogether, or by cutting a hole through it to take off the pressure. At the risk of giving the reader a few dismal twinges every time he looks upon this page, we place here, in Fig. 186, a good representation of this tormenting disorder, as a suitable warning against the folly of giving the toes narrow quarters.



FIG. 186.

Treatment.

When the disorder begins to make its appearance, it is a good plan to scrape the nail very thin on top; this will cause it to grow upon the upper surface, and to give way at the tender part, so as to obviate, sometimes, the necessity of any other treatment.

The following is the best treatment. Wash the toe in warm water, and make the parts dry with cotton wool. Then gently press cotton wool in between the toe-nail and the tender projecting flesh, and extend it along the groove back between the skin and nail. Next, wet the end of a piece of nitrate of silver, and rub it thoroughly upon the nail, close to the cotton, not allowing it to touch the tender flesh; then put on a thin layer of cotton wool, and, in two or three hours, a poultice around the toe.

In two days, the nail will be perfectly black, and, as far as the nitrate was well applied, will be separated from the parts underneath, and may be taken off without pain.

If the nail is *very thick*, scrap off the black and deadened part in two days, and apply the nitrate again. This treatment is a vast improvement on the old and cruel practice of tearing off the live nail.

Chafing and Excoriation.

WHEN the neck, arm-pits, thighs, etc., of children, get chafed or excoriated, a remedy may be found by keeping the parts clean, and by dusting them with powdered slippery elm, starch or talcum powder. If this does not effect a cure, apply Turner's cerate, or wash the parts with a solution of sulphate of zinc, or nitrate of silver, five grains to the ounce of soft water.

Grown persons may treat these troubles very much in the same way, or by wearing cotton between the parts which rub together.

Foreign Substances in the Nose.

WHEN any foreign substance gets lodged in the nose, close the mouth and the opposite nostril, and then blow forcibly through the obstructed side. If this is not successful, press the thumb against the nose *above* the obstructing body, and then make a hook of a piece of wire or knitting needle, and pressing it up over the offending substance, pull it down.

Foreign Substances in the Ear.

IF flies and other insects get into the ear, fill the ear with sweet oil, and then syringe it out with warm water. Sometimes it will be sufficient to hold the head down on one side, and have the ear filled with water, — remaining quiet in this position for a short time, when the insect will rise to the surface. If any hard substance be got into the ear, lie down quietly upon the affected side, and send for a physician.

Foreign Substances in the Gullet.

IF the substance have not gone beyond the reach of the thumb and finger, thrust them down as far as possible, and try to pull it out; or, a small curved pair of forceps will reach still lower than the fingers. Or, this failing, let some one place one hand firmly on the chest of the choking person, and give him a smart blow or two between the shoulders with the other hand. If the substance be down some way in the gullet, it may be pushed along into the stomach by some smooth, blunt instrument.

Foreign Bodies in the Windpipe.

SOMETIMES foreign bodies will remain a long time in the windpipe, and will only create some inflammation and cough, but not any immediately dangerous symptoms. When the body has gone entirely below the epiglottis, but little can be done, except to give a pinch of snuff to cause sneezing, and to direct the patient to expel the air explosively from the lungs by a few energetic and sudden coughs. This may drive the offending body out.

Bleeding from Wounds.

IF bleeding occur from any part where a bone lies near the surface, as the head or face, it may generally be stopped by pressing firmly against the bone with a finger, or a piece of cork, or by binding on tightly a hard pad. If this does not succeed, lift up each edge of the wound, and examine carefully to see if any small stream of blood is *spouting out in jets*. If so, an artery is wounded, and the point of small forceps or tweezers must be dipped in where the jets come from; the spouting mouth taken hold of and drawn out; and a strong silk thread passed around it, and tied below the forceps. The white and gaping mouth of the vessel may then be seen.

If the bleeding be profuse from an arm, the whole current of blood to that limb must be cut off, which may be done by some person pressing a thumb firmly into the neck behind the middle of the collar-bone. This will dam up the blood in the great artery of the arm, as it comes out of the chest. The handle of a door-key, wrapped in several folds of linen, may be pressed upon this place for a long time until medical assistance can be had.

Dangerous bleeding from the thigh or leg may often be stopped by pressing the great artery just below the crease of the groin.

If the bleeding be below the middle of the upper arm, or middle of the thigh, pass a handkerchief once or twice around the limb, as far above the wound as possible, and tie it tightly. Slip a stiff stick under this, and turn it round, like the handle of an auger, until the handkerchief becomes so tight as to stop the bleeding. This arrangement is called a stick-tourniquet, and is intended to answer the same purpose as the instrument represented by Fig. 155.

One of the best methods now in use, of arresting hemorrhage in cases of accidental injuries of the large arteries of the extremities, is by surrounding the limb above with two turns of a piece of rubber tubing about three-fourths of an inch in diameter, and tying it tight. This safely and effectually controls all bleeding.

Advantage is taken of this elastic property of rubber in controlling hemorrhage, in performing what is called bloodless operations of surgery. It is called Esmarch's method, from the name of the originator. It may be resorted to in all operations on the extremities, whether of amputations, the removal of tumors, or in the minor operations of removing needles, and whenever the bleeding interferes with the performance of the operation.

It is applied as follows: The limb should first be tightly bandaged with an elastic rubber bandage about three inches wide, from below upwards, and then surrounded at the highest point with a band or tube of rubber in the place of a tourniquet. The bandage is then to be removed, when the operation may be performed in temporarily bloodless tissues.

An amputation of the thigh may be thus performed without loss of any blood of consequence.

COMPRESSION OF ARTERIES, TO STOP THE FLOW OF BLOOD.

COMPRESSION of arteries may be done by direct pressure of thumb or finger, or some object such as a key or piece of wood answering the same purpose. Better still, in places where it may be used is the tourniquet which is the name given the appliance whether made of a piece of string or more elaborately made of rubber or manufactured webbing (see Figure A). The object is to shut off the supply of blood from the heart and the point chosen is nearest the surface where compression may be applied and as far from the heart as possible.

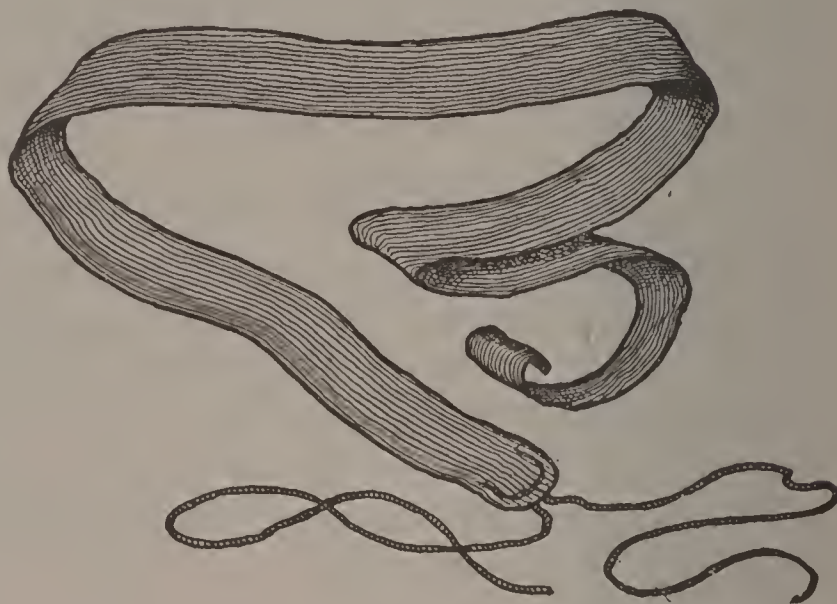


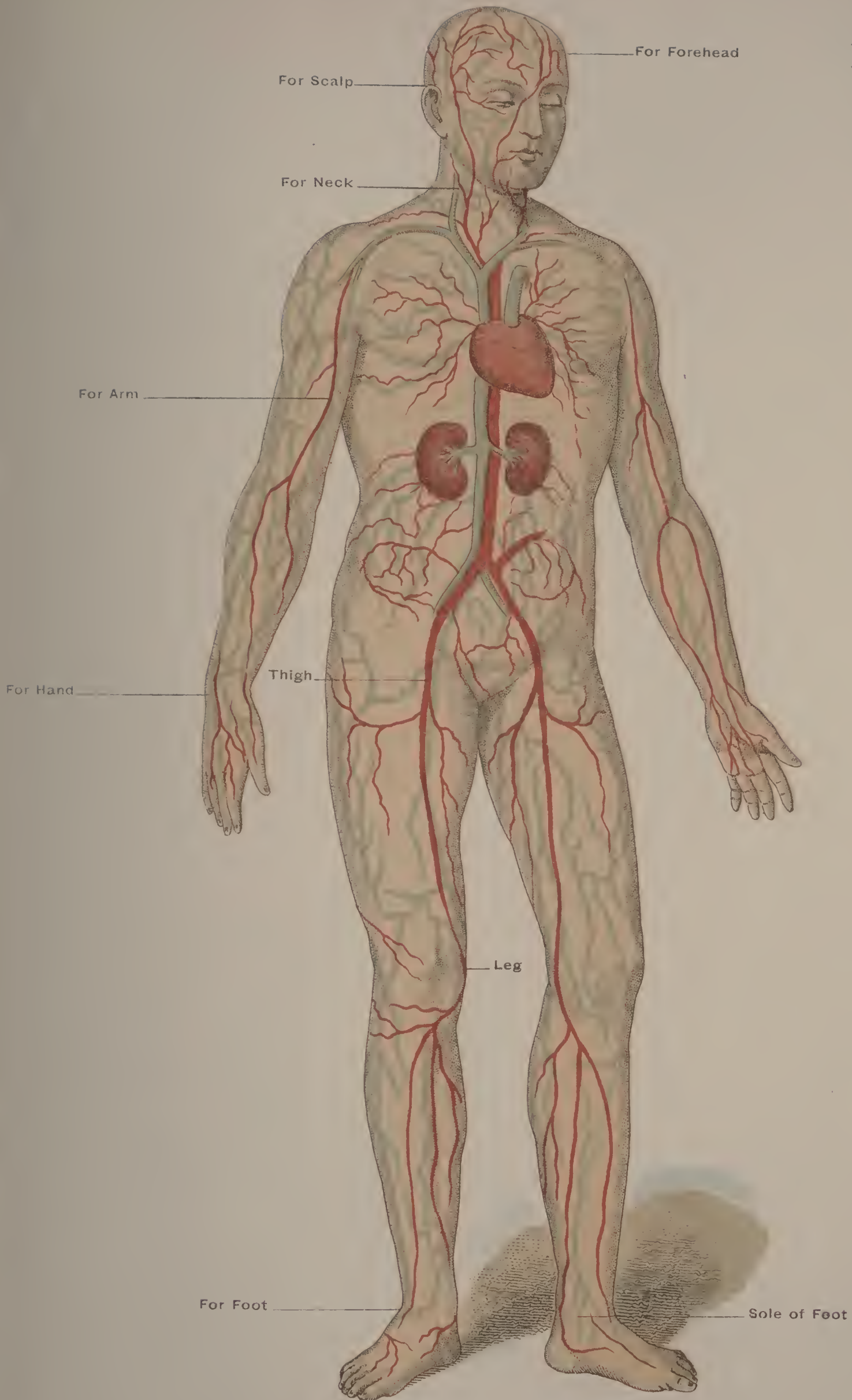
Figure A.



Figure B. Compression of Temporal Artery.



Figure C. Compression of Subclavian Artery with key handle.



THE ARTERIES AND VEINS OF THE HUMAN BODY.
HOW TO STOP BLEEDING

The temporal artery may be felt and secured just in front of the upper inner attachment of the ear to the head (see Figure B).

The sub-clavian artery, just above the collar bone along the outer half before it is attached to the shoulder blade as in Figure C.

The brachial artery, at the middle of the upper arm at the under side of the biceps muscle

The ulnar artery, out of the front of the wrist just inside the ulnar bone, which is the one on the little finger side (palm upwards).

The radial pulse, the most accessible vessel in the body, is on the

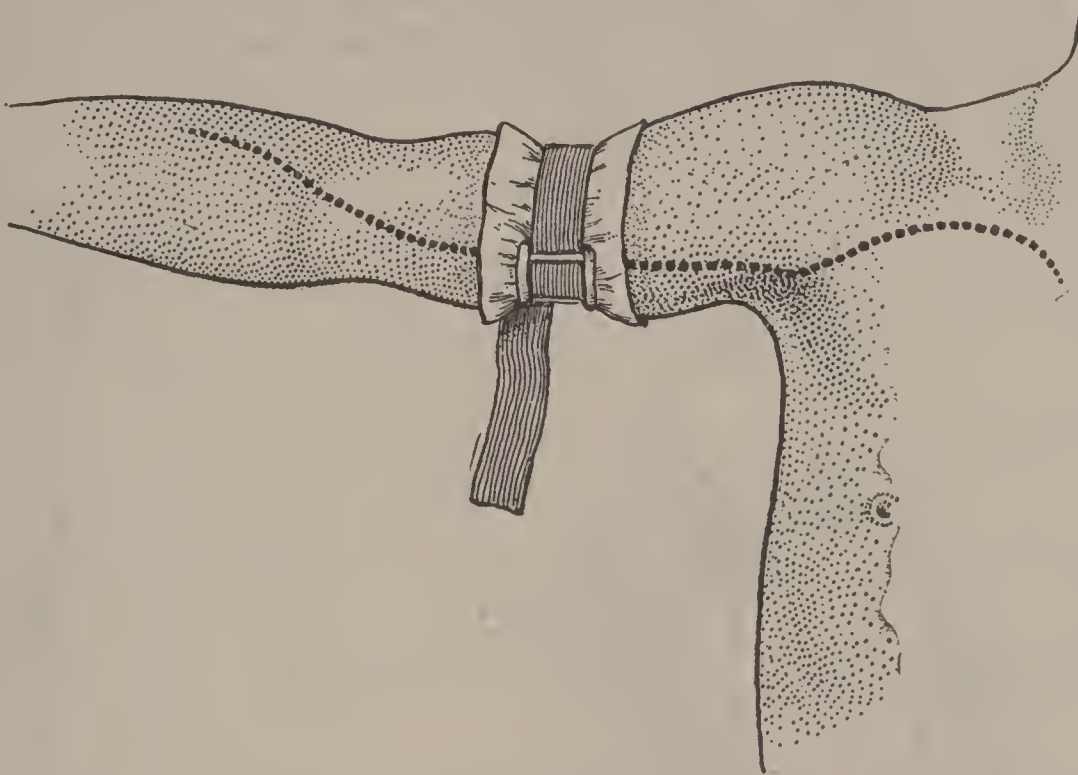


Figure E.

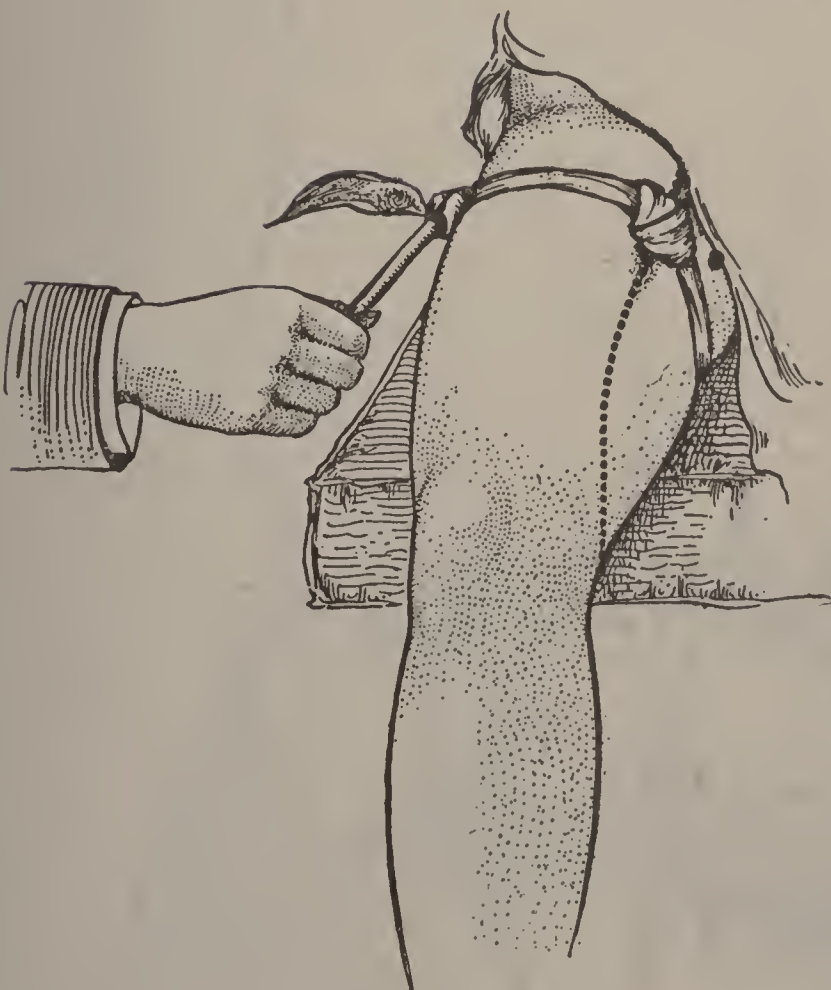


Figure D.

outer or radial or thumb side of the wrist between the prominent muscle tendon and the radial bone.

The femoral is at the extreme upper inner corner of the thigh.

The popliteal is at the under surface of the bend of the knee.

Figures D, E, F, G and H show different kinds of tourniquets and how used; figure D, for example, shows a tourniquet made by folding a handkerchief and tying it into a knot, the knot being placed over the artery, the handkerchief tied around the limb and then twisted as in cut. This presses the knot against the artery and stops the flow of blood. Figure E shows the band tourniquet; F the screw tourniquet applied; G and H show the improvised tourniquet applied to the arm or thigh.

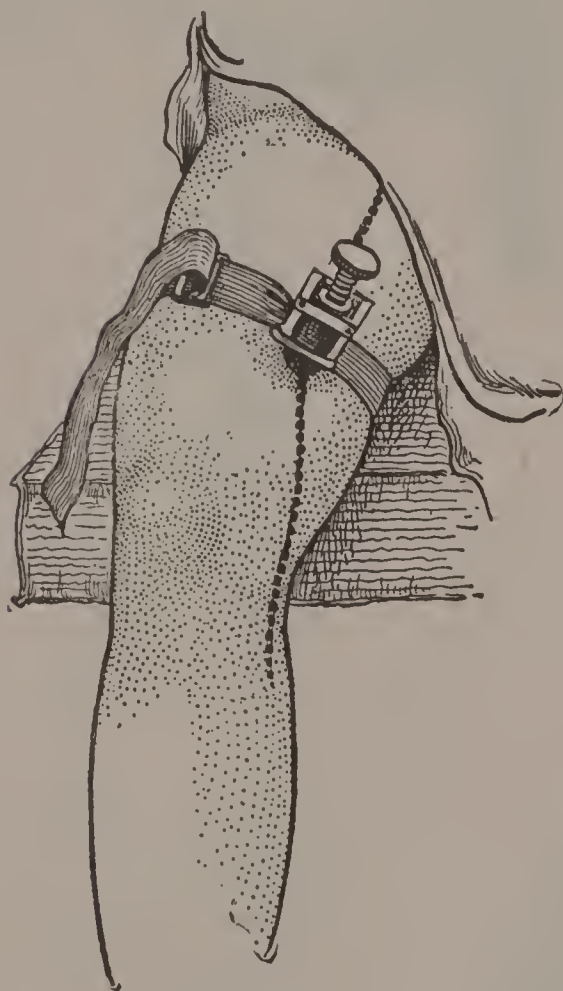


Figure F.

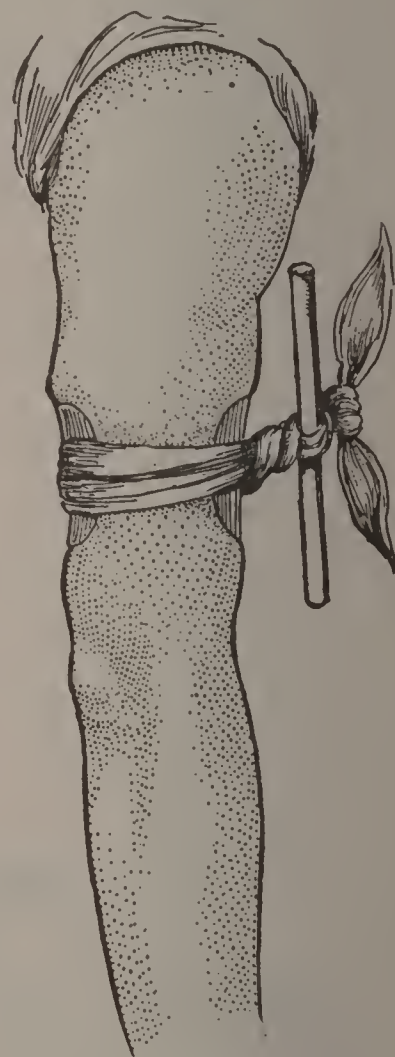


Figure G.

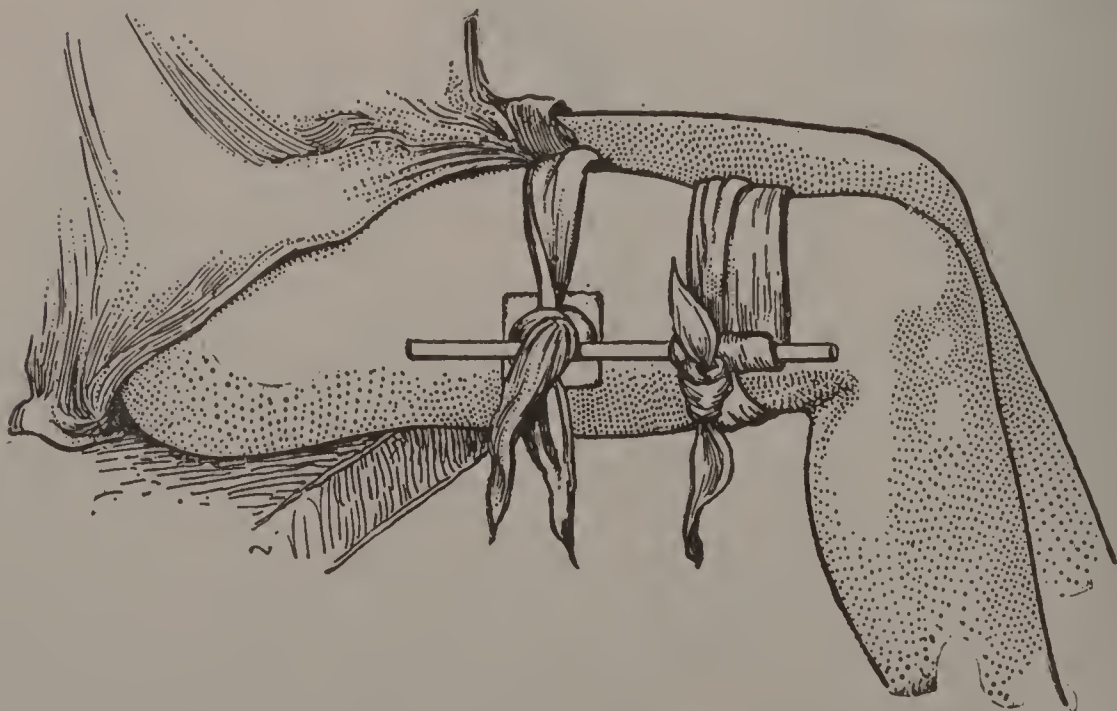


Figure H.

Anæsthetics.

IN these days when so much wonderful surgery is done and when everybody desires to have the advantage of all modern methods being employed in the treatment of their case, a little knowledge of anæsthesia will be of service to the reader. Before the discovery of ether an operation meant torture to the patient. If you should visit some of the old operating-rooms you would find rings in the floor to which ropes used to be attached in order to hold down the patient. Ether is the most commonly employed anæsthetic, and is safe to inhale, sure in its action and gives the least mortality. Something like one person in 50,000 dies from the inhalation of ether against one in 15,000 to 30,000 when inhaling other anæsthetics. It is not over pleasant to inhale, as it is somewhat pungent and choky to breathe when first inhaled. This sensation soon passes off. A longer time is required to produce anæsthesia with ether than with chloroform, but its greater safety overbalances this slight disadvantage. Vomiting more frequently occurs after ether than after chloroform.

Chloroform is the next most commonly employed anæsthetic. It is agreeable, quick in its action, and very little is required. It is the common anæsthetic in European practice, yet its greater mortality, the sudden change in heart and lung action, render its usefulness much more limited in this country than that of ether. It is employed especially in cases complicated by lung and kidney disease in the young and very old.

The *A. C. E.* mixture, so-called, is still a third anæsthetic, and is composed of a mixture of alcohol, chloroform and ether, and is frequently given to start a case with, as its inhalation is pleasant and its anæsthetic properties quick. Its mortality rate lies between that of ether and chloroform. Some people take these anæsthetics with perfect comfort; others, being timid, require a larger amount and give in to its soporific effects very slowly.

Of late *Cocaine* has been introduced into medical practice as a means of rendering the flesh numb and painless when injected under the skin about the site of the part to be operated on. It has the great advantage of maintaining the senses other than that of sensation and pain perfectly intact. By its use large operations may be done, and, in the case of minor operations, time and money are saved and bad after-effects are avoided. Sometimes a temporary faintness occurs from the use of a too strong solution, but this can always be avoided by weaker solutions and overcome at the time by a little stimulant.

For many local operations requiring incisions in the skin, temporary anæsthesia can be obtained by spraying the skin with a mixture of chloride ethyl. This acts by rapid evaporation in a way to freeze the skin, not enough to impair the tissue but sufficient to allow rapid operating for two or three minutes duration.

There is a popular feeling that ether and chloroform leave their traces in the system for a long time afterward; such is not the case, however, and fear need never be entertained that the system will be left the weaker for it.

In the use of anæsthetics proper, certain rules are to be observed. Nothing solid is to be eaten for a number of hours previous to the inhalation. All artificial teeth must be removed and all waist-bands and tight clothing should be loosened if not removed.

A little strong coffee or a little brandy and hot water may be given by mouth to prevent the subsequent vomiting and nausea.

Care of the Teeth.

DECAY and loss of the teeth is common even among the young. Few persons at the age of twenty have sound teeth, and the tendency to decay is no doubt to some extent inherited; but with careful attention they may be preserved in good condition till late in life. Parents should inculcate in their children the habit of cleanliness of the teeth.

Rotting of the Teeth.—*Caries.*

THIS is not confined to any age, temperament, or condition of society.

The teeth become diseased, die, and drop away, while all the other organs are sound and active.

The Creator doubtless intended that all the members of the same body should be equally durable; but certain laws of nature, violated by us habitually, turn upon us, as it were, in anger, and smite us full in the face, breaking our teeth, and robbing us of the means of preserving the health which we do not appear to prize.

When rotting begins in the teeth, its progress is more or less rapid, and their destruction is certain, unless it is arrested by artificial means.

The enamel is nature's fortification to protect the teeth against external injuries. When this is broken, or worn away, the bone of the tooth becomes exposed, and rotting begins immediately. Whatever has a tendency to crack, break up, or destroy the enamel, therefore, is to be carefully avoided.

Hot Drinks, or hot food, coming suddenly in contact with the enamel, are liable to crack it, and expose the bony substance of the tooth. The enamel is exceedingly brittle, much like glass in its structure, and is easily cracked when exposed to sudden transitions from heat to cold, and from cold to heat.

Luxurious Living often deranges the general health, and causes acid and unhealthy secretions in the mouth, which act injuriously upon the enamel.

Acids are injurious to the enamel; and when taken as medicine, should be well diluted, and in some cases, drunk through a tube, so as not to come in contact with the teeth. Sugar is not directly injurious to the teeth, as many suppose; but if allowed to remain about and between them, it may generate an acid which is destructive to the enamel.

A Crowded Condition of the teeth in the mouth causes the enamel to wear away, and leads to rotting; in which case, early attention and advice from a dentist is quite important.

Food Lodged Between the Teeth, and in their depressions, is a cause of extensive decay. Animal and vegetable matter, when exposed to warmth and moisture, soon generate an acid which corrodes the enamel. The teeth, consequently, often begin to decay in parts where one presses upon another, and in depressions, where food lodges and remains. This shows the necessity of cleansing the mouth and teeth often, — particularly after meals.

Mercury, when taken to the extent of salivation, — whether it be calomel, corrosive sublimate, blue pill, or any other form of it, — causes inflammation of the membranes about the teeth, and indirectly produces caries.

Acidity of the stomach, the contact of decaying teeth and dead stumps with sound ones, diseased and ulcerated gums, and, above all, a filthy, unclean and unwholesome condition of the mouth, are active causes of diseased teeth.

Improper Tooth-Powders, as those containing gritty particles, are to be avoided.

Tobacco, by deranging the general health, may be indirectly injurious to the teeth. Smoking blackens the teeth; and though chewing may be useful in deadening the sensibility of the nerve of a decaying tooth, this alone is not a sufficient reason for so uncleanly and disagreeable a habit, while so many agents may be found to produce the same effect.

Tartar. — This is derived from the saliva, and is found, when examined by the microscope, to be composed of myriads of living animals. When first deposited around the teeth, it is in a soft state; but, when not brushed away, it soon hardens, and changes from a yellow to a brown, and sometimes to a black color; and often in children it becomes a dark green. It destroys the beauty of the teeth, giving them a filthy and revolting look; the setting of the teeth in their sockets is weakened; their appearance is elongated; the periosteum or covering of the fang becomes inflamed and tender; and, if the proper remedy be not applied, the teeth will become loosened, and finally fall from their sockets. It causes the gums to become inflamed, swollen, tender, and ulcerated, and loads the breath

with a disagreeable fetor. Its *direct* influence on the teeth is not great; but it vitiates all the secretions of the mouth, and is thus a very efficient, though an indirect cause of decaying teeth. In all cases, it should be immediately and carefully removed, and some astringent wash, made from Peruvian or oak bark, be applied to reduce the inflammation and swelling of the gums.

Tooth=Ache.

THIS is generally caused by an exposure of the nerve which fills the internal cavity of the tooth. This exposure is caused by a fracture, or, more commonly, by the rotting away of a part of the tooth. This nerve is extremely sensitive; and, by coming in contact with the air and acrid substances, inflammation is excited, and tooth-ache is the consequence.

Teeth sometimes ache when they are, to all appearance, perfectly sound. This may be caused by bony enlargements of the ends of the fangs, inflammation of the periosteum, a peculiar irritability and ague of the face, which excite neuralgia, etc.

Pain of a sound tooth is sometimes caused by sympathy with a decaying one, by a disordered stomach, or by scurvy, pregnancy, tartar, or whatever excites painful sympathetic action in the nerves of the face.

Treatment. — Tooth-ache may be quieted by placing a drop of oil of cloves, or cajeput, or a drop of creosote upon a piece of cotton, and inserting it into the cavity of the tooth, and bringing it into contact with the exposed nerve. A few drops of a five per cent solution of cocaine placed in the tooth by means of absorbent cotton, or even wiped around the gum, acts very beneficially and usually quiets the worst tooth-ache. Chloroform likewise is often good.

Pains of the face and jaw, when not the consequence of rotten teeth, may be relieved by holding brandy, or whiskey, or rum, or diluted tincture of cayenne, or hot water, in the mouth, and by external applications of laudanum, Oliver's plaster, a mustard plaster, or hops steeped in alcohol, or a blister behind the ear. But for teeth too much decayed to be saved by filling, there is no remedy so proper as extraction.

Filling Teeth.

THERE is no operation of the dentist of more real and lasting benefit to the patient than that of filling rotten teeth.

A tooth that is well filled before its nerve is exposed, is as serviceable as a sound one, and nearly as durable. Its preservation for many years is perfect and complete.

It is necessary, in the performance of this operation, to remove very carefully all rotten and foreign matter lodged in the cavity; to make the cavity of a dovetail shape, so as to retain the filling; to wipe

it perfectly dry; and to press the gold in so as to make the cavity perfectly water and air tight. A tooth filled in this way may be preserved many years, and in many cases during life.

When decay has gone so far as to expose the nerve and render a tooth painful, the nerve, in all cases, should be destroyed before the cavity is filled; otherwise there may be soreness, and sometimes extreme pain making the extraction of the tooth absolutely necessary.

A tooth filled after the nerve is destroyed is not as good as if filled before the nerve was exposed; the walls of the cavity are thinner and weaker, and consequently are more liable to break and crumble away when brought into contact with hard substances; and the filling will be more likely to be loosened. There is likewise some danger of ulceration and absorption at the root of a tooth, when filled in this condition, which makes it very important that teeth should be filled early.

Gold foil is preferable to all other substances for filling teeth. If it is properly dressed and polished, it will remain in the mouth for many years without any sensible loss of its substance.

The First Teeth.

It is an imperative duty of parents to see that their children's teeth have early and careful attention.

The health and durability of the permanent teeth depend materially on the healthy condition, regularity and durability of the temporary ones. It may seem strange that diseases of the first set of teeth should influence the set which is to follow; but when we consider that the rudiments of the second set already exist when the first are cut, it is not unreasonable to suppose they may inherit disease from their predecessors.

Cleaning the Teeth.

THE most important rule to be observed in the preservation of the teeth is to keep them perfectly clean, and never to allow any foreign substance to remain on or about them. A decaying tooth should never be allowed to remain in the mouth; it causes others to decay.

If tartar has been allowed to collect, have it removed immediately. The teeth should be carefully and thoroughly brushed daily with warm water, and the occasional use of a dentifrice that is impalpably fine, and that contains no acid.

A **Brush** has no bad effect upon the teeth, as some suppose, for the parts of the teeth most exposed to the friction of a brush are never the first to begin to decay. This beginning of decay takes place in their depressed surfaces, and where they touch each other. A soft brush is better for the teeth than a stiff one, because the latter is apt to fret the gums, and cause them to recede, which gives the teeth a lengthened appearance.

Teeth in a crowded condition should never be filed, unless they begin to decay.

Tooth-Picks, made of quill, or wood, or ivory, should be used after meals, and all particles of food lodged between the teeth should be removed.

In Sickness, the rules for cleanliness of the teeth should be more rigidly enforced than at any other time, as then they are more exposed to destructive agents, and are liable to participate in the general debility and disease of the system.

Influence of Diseased Teeth upon the Health.

THE bad effects of a diseased and unclean mouth upon the general health are of more serious consequence than most people are aware. In twenty-four hours, we breathe twenty thousand times; and what must be the effect upon the delicate structure of the lungs, when, for days, months and years, the air we breathe is drawn through a depository of filth, and is poisoned by being mixed with effluvia arising from decayed and diseased matter in the mouth.

The intermittent fevers of the West are caused by the effluvia arising from the decaying matter of low grounds and marshes, which can hardly be more pernicious than the effluvia from the impurity and corruption generated in an unclean mouth, filled with decaying teeth. Dr. Hays says "no species of animal matter is so offensive to the health and vitality of the adjoining substance, whether nerve, or membrane, or any part or portion of the living body, as decaying bone."

Ulcer of the Stomach.

THE stomach is normally supplied with pure hydrochloric acid manufactured by glands in its mucous membrane. Should, for any reason, this acid become either too strong or too great in quantity, its action in addition to that of the food, would be on the stomach itself. In early or mild cases perhaps the trouble would be no more than that of a bad attack of indigestion or dyspepsia, but as the process continues, the pain becomes more severe and other symptoms follow which shows the severity of the trouble. If it is asked why the stomach walls are not thus digested if they are capable of absorbing the food that is being digested in it, the answer, while not satisfactory, is perhaps the best that can be given, that the vital forces which keep the tissue living, owing to constant circulation of blood, prevent the action of the juices upon the body. The ulcer of the stomach is fairly common, more so in England than in the United States, and is found most commonly between twenty and thirty years of age. Women are more affected than men and the occupation of servants, cooks, and waiters seem to increase cases. After some obscure dyspeptic symptoms, we have pain after eating with a constant gnawing when the stomach is empty, together with vomiting, many times of blood, and general failure of health with loss of flesh and strength. Food

when taken into the stomach seems to relieve the pain, which returns as soon as digestion has taken place and the stomach is empty again. The hemorrhage from the stomach is the true result of the erosion or eating away of a blood vessel in the ulcer, and this erosion may go so deep that a perforation will be caused and a peritonitis will result. As partial healing of this ulcer may occur a cicatrix or scar in the stomach may be formed which will cause a contraction, which if occurring at the outlet will prevent food leaving the stomach as it should. Therefore, in addition to the distressing symptoms associated with gastric ulcer, we have as a consequence three serious additional possibilities: Death from hemorrhage or from peritonitis, due to perforation or inability of the food to leave the stomach on account of closing of the pylorus, which would cause excessive enlargement of the stomach and death by starvation.

Treatment.—Where competent surgeons are not obtainable, the treatment must be by medicine to counteract the excessive acidity. We give bicarbonate of soda in 10 to 15 grain doses several times a day, or any other simple alkaline. We are careful to have the diet consist of material that can be easily digested and not leave much residue to pass over the ulcer. Owing to the constant motion which the stomach and bowels perform in the endeavor to pass the food onward, the surface of the ulcers are being continually scraped by food passing over them. Healing is, therefore, retarded unless some method is devised to stop the irritation. The best treatment is by nutrient food thrown into the rectum by means of a syringe. Milk, eggs and digested juices can be absorbed by the rectum almost as well as by the stomach. Six ounces at a time may be used and this quantity given four times in twenty-four hours. With care and when given by a person practised in its use, larger amounts can be tolerated. The writer kept a young female patient for three weeks on nutrient feeding by the rectum, with complete recovery from extensive ulcer of the stomach, the only liquid that passed the lips being sips of water. Milk digested with peptonizing powders was used, a pint at a time, and the recovery from a bad ulcer which had caused so much loss of blood that the patient almost bled to death. An operation with brilliant results is now being done by surgeons. This operation goes under the title of gastro-enterostomy and consists in cutting off the small intestine where it leaves the stomach, especially if a constriction is present, but in any case a new opening is made in the stomach and the new portion of small intestines is sewed to this opening in the stomach. By this means, food is passed almost directly from the gullet across one end of the stomach into the small intestine and the remainder of the stomach is left in a state of rest. The operation has given great promise and in chronic cases is a well recognized procedure, especially after perforation.

Glanders.

THIS disease, while usually occurring in animals, especially the horse, is capable of infecting the human being by means of the transmission of its germs which is called bacillus mallei. Infection may occur through drinking water, from one horse to another, through the same trough, or to a man if careless about drinking, if the horse coughs or blows some of his nasal secretion into drinking cups. It can occur through wounds of the skin, but is most often contracted while taking care of the horse affected with the disease.

Symptoms.—Several days after beginning of infection, fever develops and the general sickness is felt throughout the body. A round, reddish painful nodule or swelling will appear either in the nose or at the place where the skin is broken and ulceration of the lining of the nose with discharge of pus occurs. The rash composed of small boils or pustules which has an appearance like smallpox often shows upon the face, and within a week or ten days death occurs.

Treatment.—The treatment should be incision of all swellings, syringing with peroxide of hydrogen and the application of antiseptic washes. A remedy called mallein has been recommended, but recovery is very rare in spite of all we may do. We are warranted in taking all precautions to prevent friends and attendants from contracting the disease.

X-Ray.

THE Röntgen or x-rays are developed by means of a powerful current of electricity which is passed through a large glass tube from end to end rather than on an incandescent principle by which the current returns through the same aperture that it enters. These tubes have had the air withdrawn from them to the highest possible degree, in which respect they are like incandescent lamp globes. The x-ray tube is called a "Crookes" tube, named from the inventor. The discharge of electric current through the rarefied air in the tube allows the transmission of shadows through what was formerly an opaque or non-light-conducting substance. Professor Röntgen of Wurtzburg, Germany, is the man to whom the discovery belongs, though four or five years before his announcement, Hertz had shown that light waves were able to penetrate solid matter. In 1895 Röntgen accidentally discovered that a certain chemically prepared paper becomes phosphorescent when used in connection with a Crookes tube. From this date the development of the so-called x-ray has been rapid. It is well known that nails, screws, and other metallic substances may be imbedded in wood, and their exact location shown by means of the x-rays, but it is of interest to know what development the new science has made in medicine and surgery. We can discover where a bullet lies in a head or in an arm, whether in bone or in muscle or in the

regions where it is too dangerous to attempt to remove the foreign body and allow it to remain. Broken bones show up well under the influence of the x-rays and bad results after fracture may be determined and better ones obtained by resetting. Varieties of club-foot and flat-foot may be inspected and the operation necessary for their cure determined. In cases owing to too much swelling or pain where either fracture or a sprain may be present, we may determine with exactness which injury we have to deal with. Philadelphia surgeons lately were able to make out the exact spot at which a jack-stone was located in a child's gullet, and its removal by the knife was accomplished.

As the detection of one substance from another depends upon the difference in density between two substances, it stands to reason that the greater difference there is the clearer the picture will come out. By means of the so-called *Fluoroscope* we investigated the conditions as they are in the living, but it is possible by means of the so-called *skiagraph* to take an x-ray photograph and permanently preserve the picture. Valuable as the x-rays are as a means of diagnosis, their importance is increased in medicine. Here a man well acquainted with the working of the machine may see a heart beat inside the body, may detect the beginning of changes in the lung which is the forerunner of consumption, may decide with certainty that a stone or calculus is located in the kidneys or bladder where its presence was only suspected. By the dentist the eruption of the teeth and the presence of retained roots or even extra teeth in the jaw may be discovered. For the obstetrician the position as well as the size of the child may be located in the mother. Medicinally the x-ray is being used largely. In certain varieties of cancer the growth is stopped, the inflammation is lessened, healing takes place and in favorable cases a perfect cure is obtained. This treatment holds true in too few cases to enable us to lose our dread of that disease and only where there are skin manifestations, and those not extensive, are they able to be held in check. When cancers are deep seated, as in the stomach or the liver, in which localities they are so liable to affect, we cannot expect much improvement. In a great variety of skin disease, as in eczema, neuralgia, pains, ulcers, keloid and lupus, the result from the Roentgen ray is extremely gratifying. As severe burns are liable to result where the rays are brought in contact with normal, that is, healthy skin, some means of prevention is to be used. Lead foil is placed on the body with a hole cut in it the size of the disease which is to be treated; the current is then turned on and the radiations from the tube are stopped by the non-conducting metal foil and only go through the opening under which the disease is present. An interrupted electric current is the means used to obtain the spark which jumps across the glass tube before described, and this break in the wire varies from eight to fourteen inches, according to the desire of the operator. The machine is made so that there will be about twenty-five thousand interruptions a minute.

Radium.

A CERTAIN substance, has been discovered to which the name of radium has been given, which has the power after an exposure to light, of transmitting rays in every direction. By further investigation certain salts were separated from uranium and the impurities from these salts found to have greater power of transmitting rays. They have the same general properties that were found in the Röntgen rays, but a latent power is the cause of the phenomenon rather than electricity, as in the x-rays. Since 1901, Professor Currie with his wife, have added greatly to the knowledge concerning this body. In appearance radium is a crystal not unlike common salt and glows feebly in the dark. It has been impossible to obtain radium in any large amount, in fact, it requires eight tons of the residue from the radium ore to yield fifteen grains of pure radium. This would bring the price up to about \$125 a grain, which is three thousand times the price of gold. The rays that emanate from radium have the power of imparting their glow to all articles they are in the vicinity of. The hand, clothes and instruments of an experimenter with radium absorb the power of glowing in the dark. Although the scarcity of radium was mentioned, it is remarkable with all the investigators attempting to obtain it that there is so little still on the market. One year ago it was estimated that in the whole of Europe, including Germany and France, not more than forty grains of pure radium salt exists. The power of continually emitting the feeble light which it was formerly supposed did not cause any lessening of the substance itself, is now known to diminish its weight, so while the loss is almost infinitesimal, in fact, not able to be measured, yet there is some loss going on from the discharge of the rays. The same property of liability of burns is always noticed in radium. Carrying a minute quantity in a glass vial in the pocket has caused a fortnight later a deep and painful sore on the body which required weeks to heal. The same precaution, *i. e.*, lead foil that was recommended for the x-rays is necessary for radium rays. The sensation of light is perceived through the closed eyelid, which is not due to the eye seeing the light but due to the phosphorescence set up by the rays, passed through the liquid and through portions of the eye. The rays that are absorbed by materials other than radium itself lose their property after a greater or less period of time, depending partly on the kind of substances and partly on the action of the air. If lead has been exposed to the action of radium and then sealed up, it loses its power of discharging rays very much slower than lead which has been freely exposed to the air. Radium does not lose its power on exposure to the greatest degrees of glow; on the other hand, intense heat causes sudden discharge of rays with corresponding loss of light, which, however, is renewed within two or three days if allowed to rest. The same class of medical cases that the rays have been used

for have been the subject of experiment by radium. In cancer and other diseases which have their origin in the growth of germs it has been hoped that the influence of radium rays would modify their course, and it is true that many patients have had no relapse for some months after treatment; whether a permanent cure can be announced it is yet too early to say. The mode of treatment by radium consists in enclosing a small portion of radium between two metallic sheets, one of copper, the other of aluminum with the aluminum face downward upon that portion of the body which is to be treated, and an exposure of fifteen minutes a day is allowed for a period extending over weeks or months. Although radium is present in such minute quantities, it is nevertheless widely distributed in America. It is found in a mineral known as carnotite which is abundant in Utah. In Texas a quantity of earth always gives up a small amount of radium. Abroad, in certain of the mountains, especially in the region of Saxony, radium has been extracted from the by-products of the silver ores. Two other substances, namely polonium and actinium, were discovered at about the same time with radium. Their difference from the others is comparatively nothing, except greater or less brilliancy and the color of their rays.

Flatfoot.

AN affection of one or both feet that is very often mistaken for rheumatism and treated with rheumatic remedies for a long time without relief, is flatfoot. This term is used synonymously with broken arch, contracted foot and broken instep. To obtain the strength necessary to enable the weight of the body to be carried in a light, graceful and easy manner, the foot is not placed entirely on the ground, but an arc or arch is formed by the bones being held in a certain position by the ligaments. Under the influence of disease, rapid growth of fat with gain of weight, long standing on hard pavements, much walking, bad boots, and occasionally by jumping from high places, as a chair or step ladder, these ligaments lose their efficiency and the arch gives away and flatfoot results, as in Figure 1. Many



FIG. 1.

writers distinguish pronated foot from flatfoot; the difference is that in the former the foot is only flat when weight is put upon it and then the inner border of the foot rolls under, and toward the inside, while in true flatfoot the arch is gone whether the foot is at rest or bearing weight.



FIG. 2.

The presence of flatfoot may be determined by wetting the sole of the foot and placing it on a dry planed board. The imprint will show the entire surface of the bottom of the foot, while if there is no flatfoot, the imprint will show only the toes, ball and heel of the foot, and the outer edge, the whole having the effect of a crescent, the arch as in Figure 2 not touching the board.

Symptoms.—The symptoms of flatfoot are pain and tiredness anywhere from the ankle to the hip. Great discomfort is felt if standing is continued over a great period of time. The foot is hot and feverish and the boots are hard to get on. Possibly the pain is most severe in the calf and the big ligament at the back of the ankle. It will easily be seen how these symptoms may be mistaken for rheumatism and treated as such. Symptoms are less pronounced in the morning, and in fact in early cases all of the pain will be felt on going to bed, and excepting for a sense of stiffness, the troubles will have disappeared until the causes are again at work.

Treatment.—The simplest method of repairing a broken arch is by the use of pads made of some non-absorbable material and with density enough to give support. Many times if the arch is properly supported it will regain its tone and the pad may be dispensed with. Cutting out two or three pieces of thick felt, $\frac{1}{2}$ inch thick, or if the hard felt is used, about $\frac{1}{4}$ inch, they may be held in the arch of the foot by bandages or adhesive plaster. The pattern should be of $\frac{1}{2}$ moon shape with the straight edge pointing upwards and the round edge fitting under the hollow of the instep; enough layers, usually two or three are sufficient, should be used to overcome the drop of the ligament and yet not over-arch the foot. As this pad soon becomes dirty and foul smelling, metal plates are much better, and to make them it is necessary to take an impression of the foot in plaster of Paris. After removing the foot from the plaster, the negative impression is well greased with lard or vaseline and a positive impression of plaster is run into the moulds. After giving a sufficient time for the cast to harden, the outer mould is pounded away with a hammer and the true impression of the foot remains. With a knife, enough plaster is now scraped away from the instep, which it will be noticed is low, until a normal foot is produced. Any instrument maker can now fit with steel a shank that will have the outline of the arch as fashioned with the knife. This steel shank after being put between thin leather soles, if desired can then be worn in any boot that the person desires.

BANDAGES.

FOR the purpose of holding dressings of all kinds in place, to obtain compression, to give support, or correct deformities, and finally, to immobilize splints, we use layers of cheese cloth, cotton flannel, rubber or other material which we call bandages.

To further increase their usefulness we either apply certain substances after the bandage has been put on or we may apply the same substances in the bandage material and hardening will occur in the meshes of the bandage. These materials are plaster of paris, starch, glucose or silicate of sodium.

The Hand.—The ordinary handkerchief bandage is often used to temporarily hold dressings in place when the roller bandage is not available. By folding a linen or silk handkerchief on a line from one corner to the opposite diagonal and then folding twice more we obtain with a large handkerchief a bandage that will be from

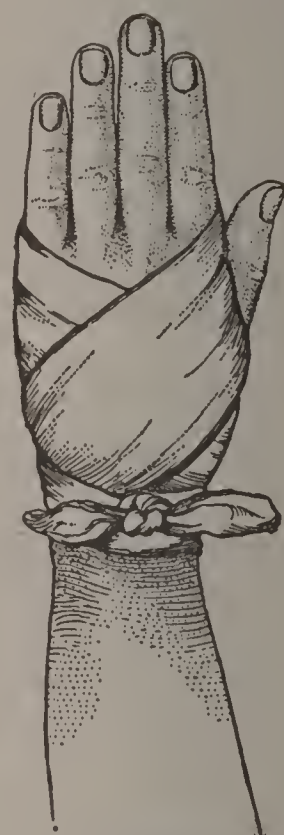


Figure 1.

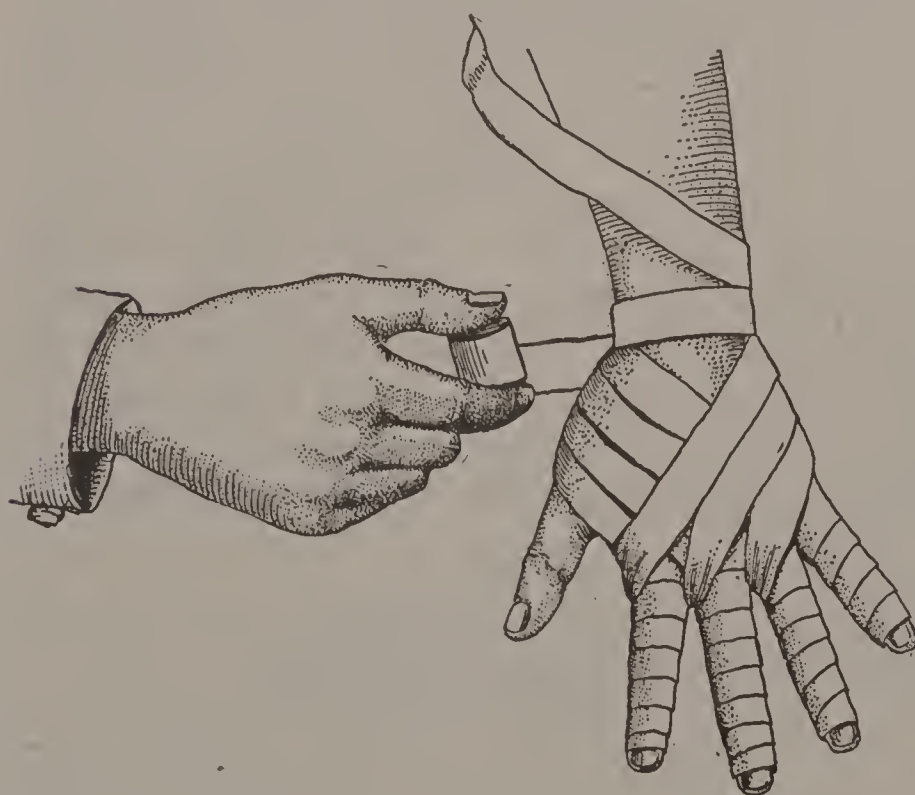


Figure 2.

four to five inches wide. Place the hand, palm downward, in the middle of the bandage, carry the ends over and cross them on the back of the hand, then around the wrist and tie in a square knot (see Fig. 1).

For finger and hand bandaging take a roller bandage varying in width from one inch to three inches

wide and five yards long. After the dressing has been applied take two or three turns around the finger to hold the bandage from slipping, then from left to right making the distances neat and even, carry the roll around the finger.

The figure of eight, which has the advantage of giving better compression is made by carrying the bandage away from the person applying it on the upper stroke, then around the hand and toward the person on the down stroke, making the crossing point in the middle of finger, as illustrated, and having each crossing point one-half inch higher up than the one preceding (see Figures 2 and 3).

Wrist and Forearm.—A two or three inch width bandage is needed. Begin with a couple of turns around the wrist, then down over the back of the hand to make a beginning at about the junction of the fingers with the flat of the hand. Use the figure eight up to the beginning of the wrist,

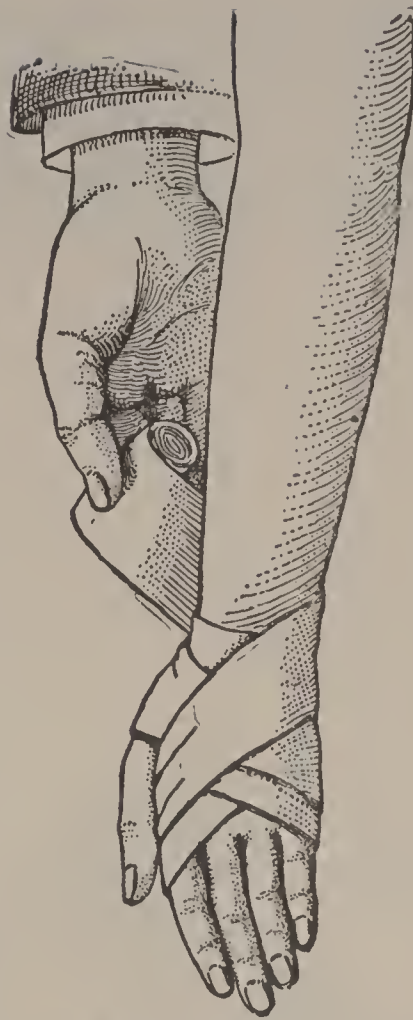


Figure 3.

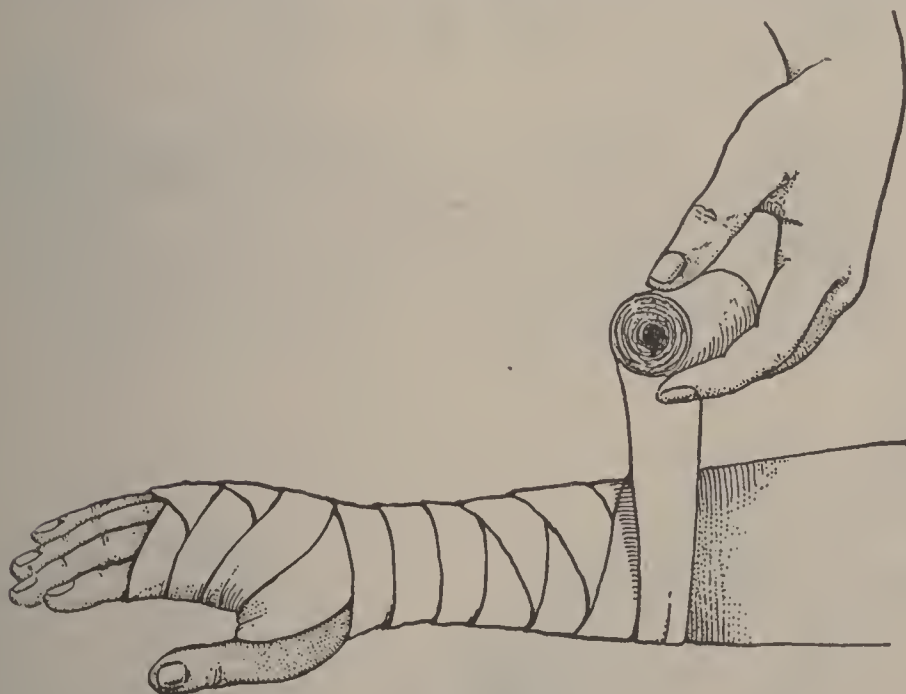


Figure 4.

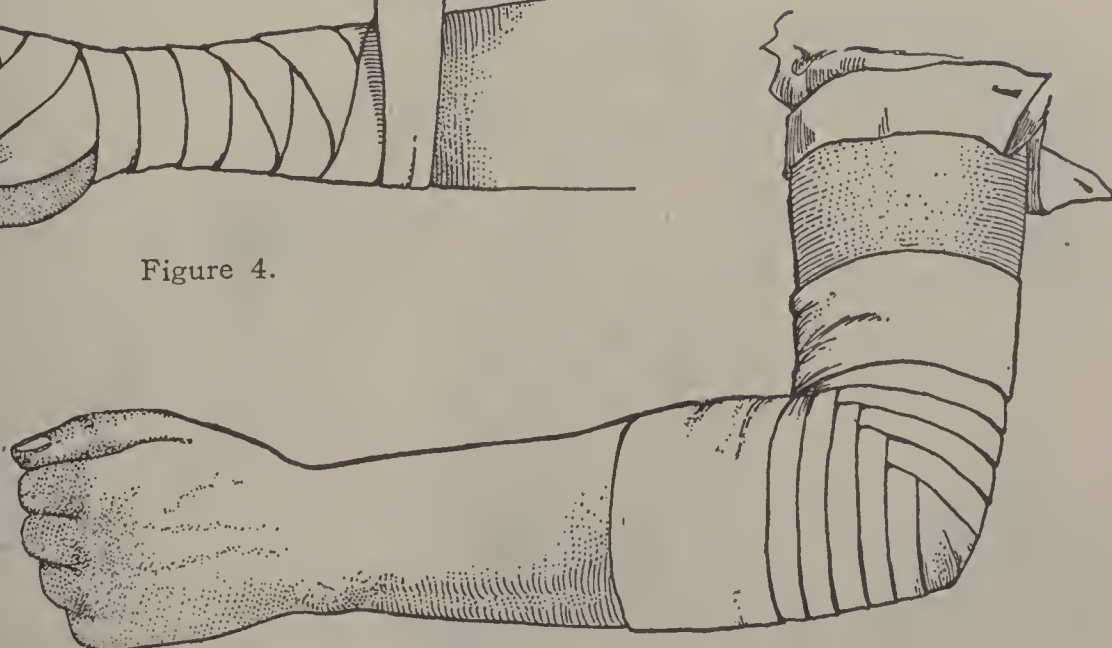


Figure 5.

then three or four circular turns, then the figure of eight again up to the elbow and if necessary to bandage the elbow, carry the roll directly over the point of the elbow, then the next turn just above and the following one just below. Continue until the elbow is covered in and then begin the figure eight style above the elbow

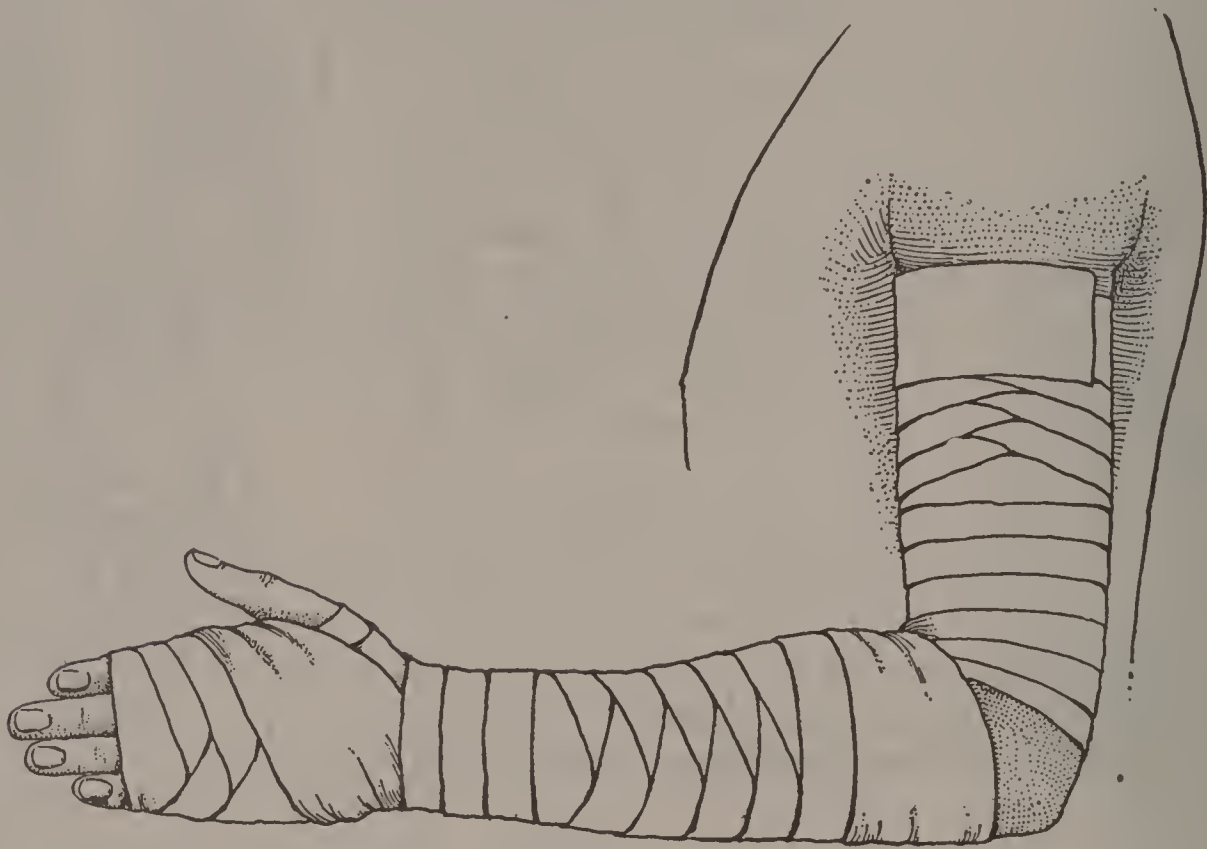


Figure 6.

(see Figures 4, 5 and 6).

Leg.—For the leg at any point, begin with the circular for two or three turns and continue with the figure of eight.

Head.—Use two bandages, carrying the first one several times around the head just above the ears, and then catching the other



Figure 7.



Figure 8.



Figure 8A.



Figure 9.



Figure 10.



Figure 11.



Figure 12. The jaw.



Figure 13. The eye.



Figure 14. The heel.

Figure 15. The foot.

Figure 16. The foot.

bandage each time, which is being carried over the top of the head at right angles to the first (see Figures 8 and 8a).

Figures 9, 10 and 11 explain themselves in illustrating the use of one or two handkerchiefs when used for bandages.

Jaw.—The jaw should be bandaged in the manner shown in Figure 12. It is well to catch the crossing points of the bandage on either side with a safety pin or with needle and thread.

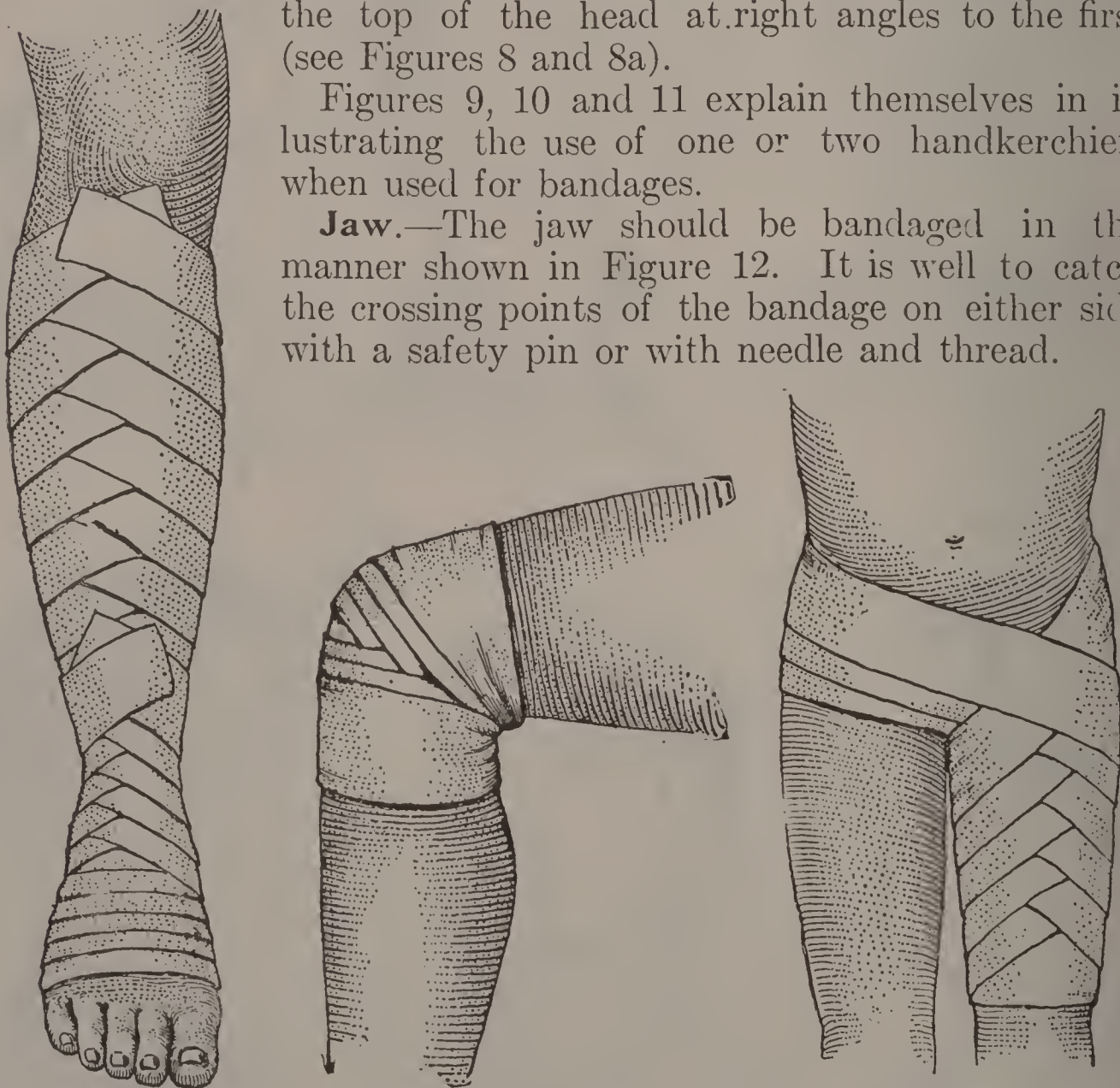


Figure 17. The calf.

Figure 18. The knee.

Figure 19. The thigh.

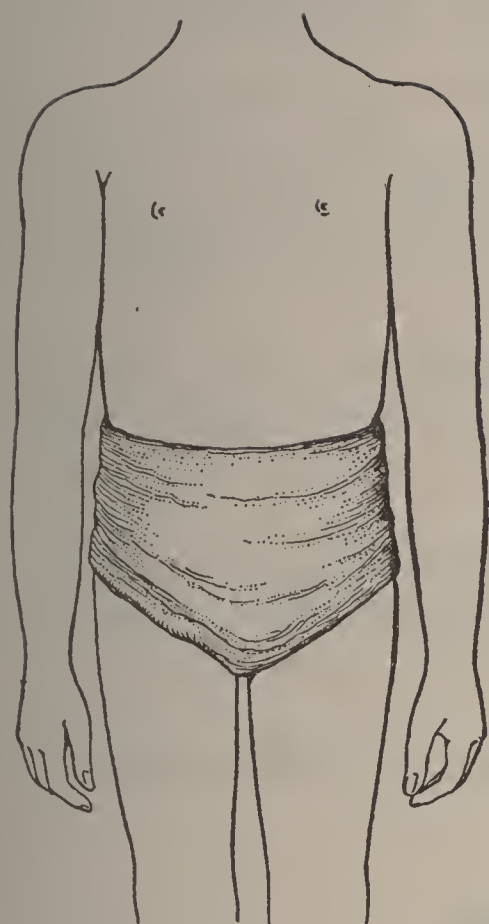


Figure 20. Abdomen.

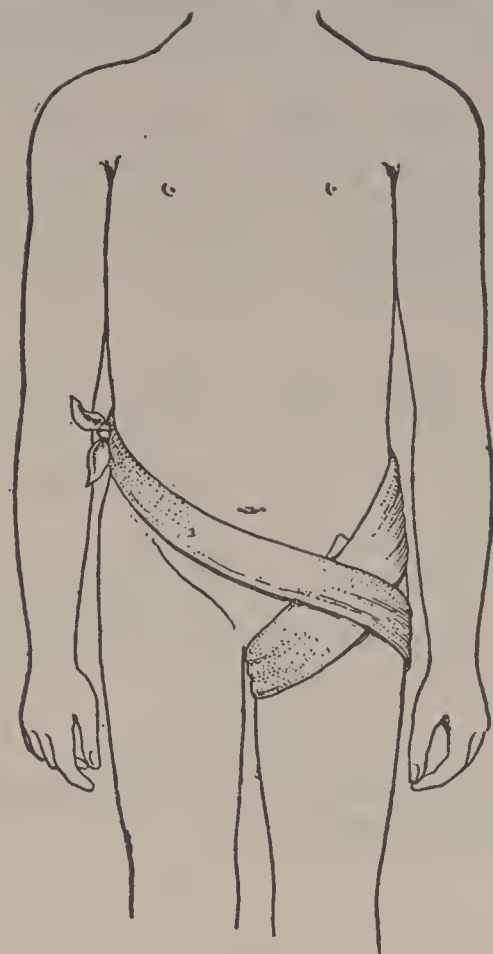


Figure 21. Groin.

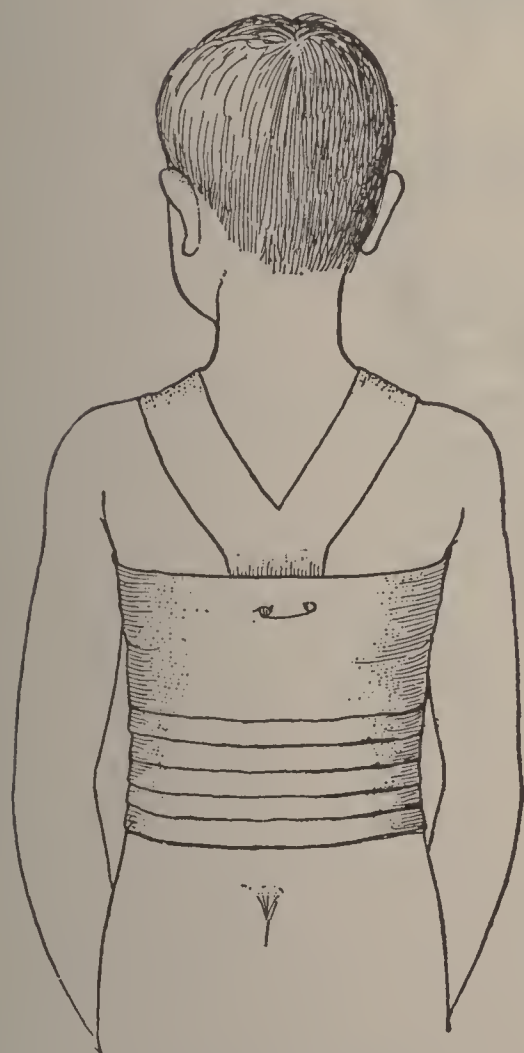


Figure 22. Back.

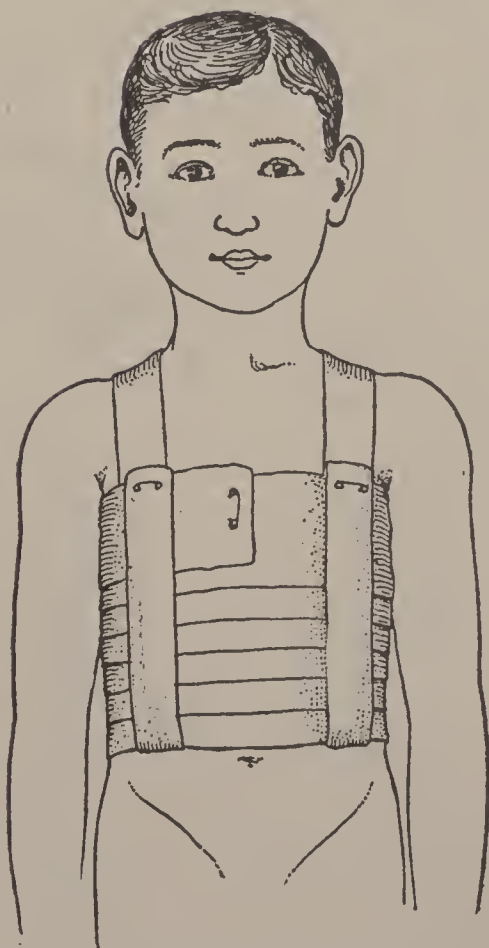


Figure 23. Chest.

Eyes.—A handkerchief or roller bandage will act equally well for bandaging the eye (see Figure 13).

Foot, Calf, Knee and Thigh.—The bandaging of the foot and leg is done precisely the same as the hand and arm. The knee is treated similarly to the elbow. The bandages of the thigh, called the “spica,” is simply a pattern of the figure of eight with the loop enclosing the abdomen greatly enlarged (see Figures 14, 15, 16, 17, 18 and 19).

Abdomen, Groin, Chest, Back, and Shoulder.—The abdomen may be sustained by a handkerchief, or better, with a “swathe” about ten to twelve inches wide and pinned securely in front with safety pins (see Figure 20).

The chest and back may be swathed or bandaged with the circular turns and a short piece of bandage passed over the shoulder (suspender style) to prevent it from slipping, and pinned with safety pins as in Figures 22 and 23.

The shoulder is bandaged in a like manner as the thigh and groin (see Figure 24).

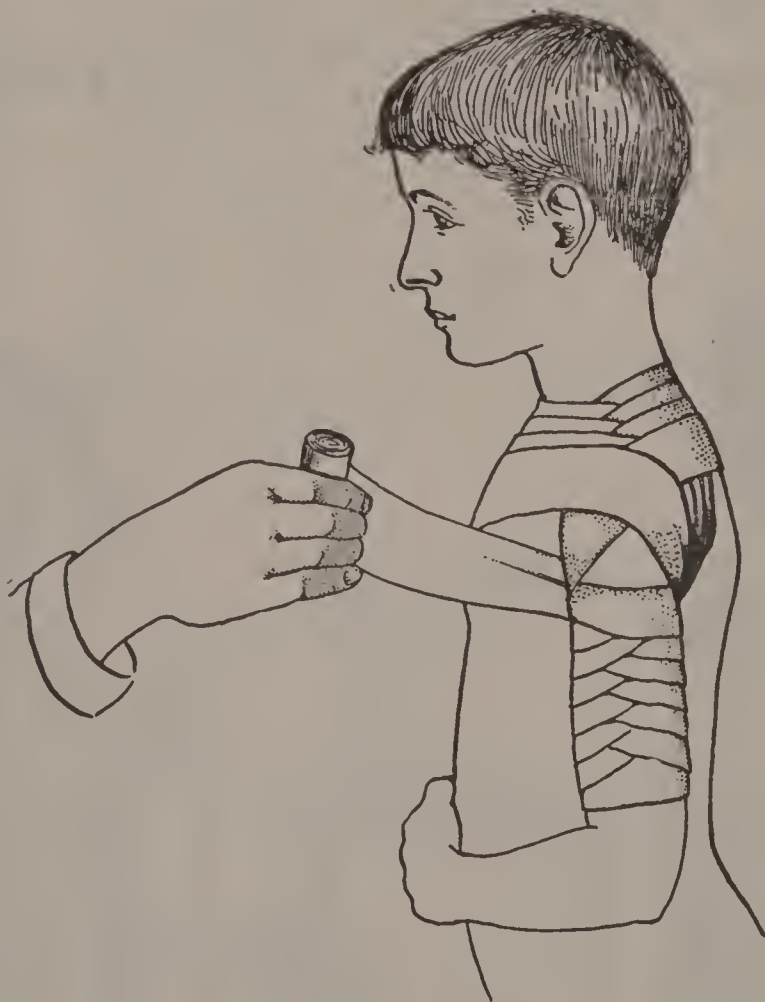


Figure 24. Shoulder.

HOMŒOPATHIC TREATMENT OF DISEASES

With the Latest Directions for the
Selection and Use of Homœopathic Remedies

BY

A. T. LOVERING, M. D.

Member of the Faculty Boston University School of Medicine

Member of Boston Homœopathic Medical Society

Associate Editor New England Medical Gazette

and well-known author of several books on Medicine and Nursing — their practice and use.

1905

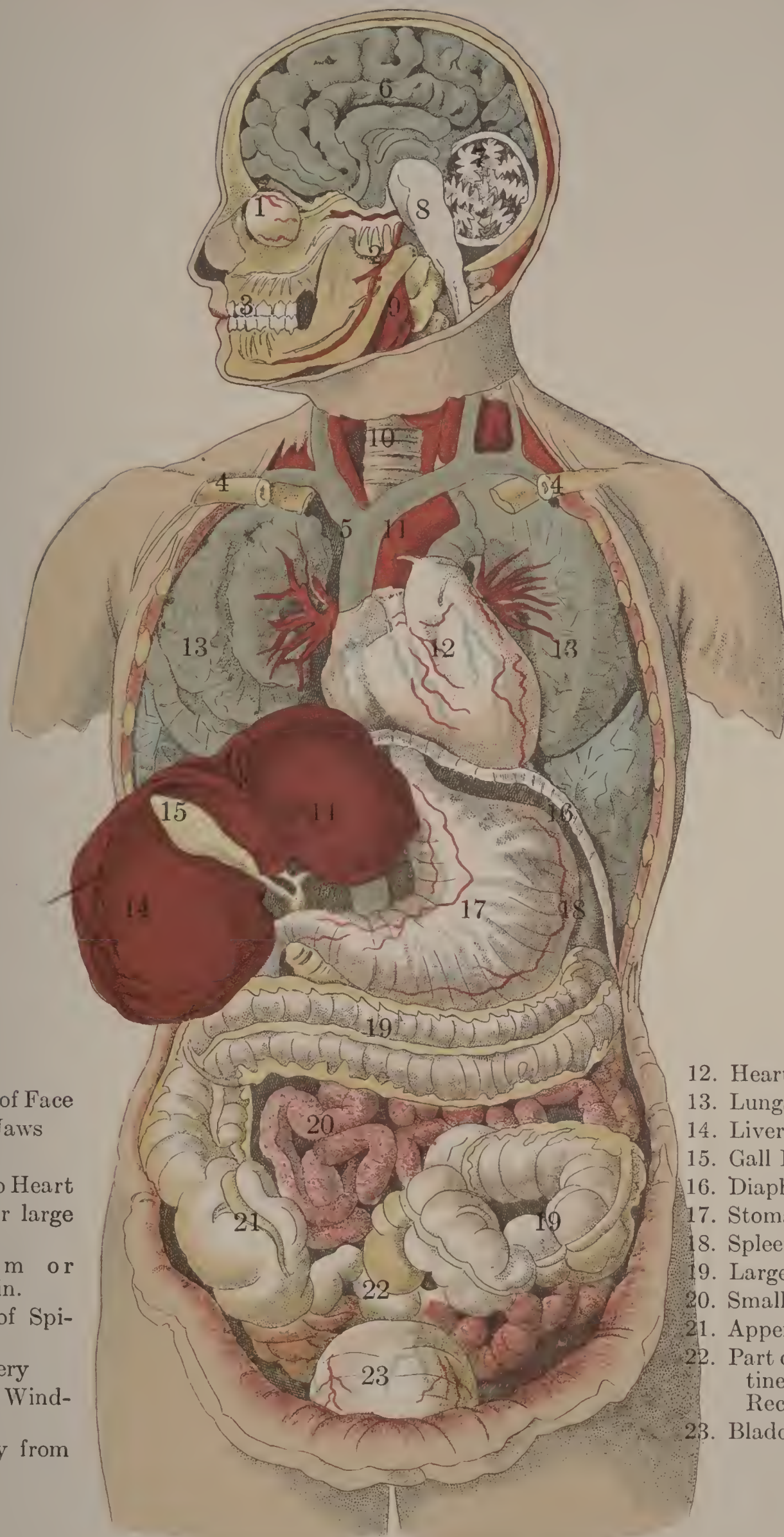
HOMŒOPATHIC TREATMENT OF DISEASES

By A. T. LOVERING, M. D.

THE enlightened and liberal policy of the publishers of this comprehensive work on the practice of medicine, will be thoroughly appreciated by the laity for whom it is written when they take note of the fact that every well tested method of preventing and curing disease has been included in this volume. There has never been a time in the history of the world when both the medical profession and the public have possessed so many resources for the lessening of sickness and the lengthening of life, as now. All the important means to this end will be found on the pages of this book. Among the most important is the treatment of diseases by remedies selected in accordance with what is known as "the law of similars."

More than a hundred years ago Dr. Samuel Hahnemann, a distinguished German physician, became dissatisfied with the prevailing method or lack of method of using drugs. These were chosen in accordance with some real or fancied virtue they possessed, or in conformity with the fashion of the day, or to please the whim of the prescriber. Almost nothing was known of their actual and definite effect upon the organs and functions of the body. Medicines were also administered in enormous doses merely to deaden pain, to cause violent purging or sweating and the like, and the popular and indiscriminate treatment of fevers was by excessive blood letting. Now constipation, for instance, is a symptom of disease, and purgatives will remove that symptom, but the cause of it still remains; pain is a symptom, and morphia will deaden it, but will not cure the cause. A tree that is dying because of disease of the roots, will not be healed by cutting off the dead branches.

Another thing that Dr. Hahnemann objected to was that medicines were combined then as now, so that a number of powerful drugs were introduced at one time into the system, with no means of forecasting their true effect on the living organism, however correct the combination from a chemist's viewpoint. He concluded that there must be a better way of selecting remedies than this hit-or-miss fashion,



1. Eyeball
2. Main Nerve of Face
3. Teeth and Jaws
4. Collar Bone
5. Main Vein to Heart
6. Cerebrum or large Brain
7. Cerebellum or small Brain.
8. Beginning of Spinal Cord
9. Carotid Artery
10. Trachea or Wind-pipe
11. Main Artery from Heart

12. Heart
13. Lungs
14. Liver
15. Gall Bladder
16. Diaphragm
17. Stomach
18. Spleen
19. Large Intestine
20. Small Intestine
21. Appendix
22. Part of large Intestine called the Rectum
23. Bladder

THE INTERNAL ORGANS OF THE HUMAN BODY.

that there must be some universal law of cure. For over forty years Hahnemann conducted a series of experiments testing the action of individual remedies on the healthy human body. During these years he learned the definite and constant action of more than sixty remedies, and discovered the great truth that a remedy taken by a healthy person and causing, for instance, symptoms characteristic of malaria, will relieve those symptoms in a person ill with malaria and cure the underlying condition, for, as we have said, symptoms are but manifestations of the disease itself. This fundamental truth is "the law of similars," and is the law applied by many physicians in the selection of the remedies they use, and this is what is meant when it is said that medicines are used homœopathically. It is not essentially the strength of the medicine or the size of the dose, but its selection in accordance with this therapeutic law which results prove to be true, and to be depended upon. The method of preparation of remedies to be used homœopathically, and their effective action, when properly chosen, because they *are* the right remedies, makes it unnecessary to use them in a crude form in large doses. Every intelligent practitioner applying the principle of homœopathy, will give no stronger preparation, and no more of a remedy than is necessary to relieve or cure his patient. Opinions and experiences differ as to both strength and size of doses, but opinions and experiences honestly differ in all directions and in the lives of all men. It is enough to recognize the fundamental truth and apply its law to the best of each man's abilities.

It must be distinctly understood that the homœopathic treatment of diseases includes much more than the selection of remedies as just explained. An allopath uses remedies after his methods, a homeopath after his, but the skillful and well educated physician of either school makes use of a host of auxiliary measures to prevent and cure disease, such as sanitation, hygiene, diet, hydrotherapy, medical gymnastics, electro-therapeutics, serum therapy, surgery, and many other resources placed within his reach through the constantly increasing knowledge of the cause and nature of different diseases, and the means of combatting them.

In the following pages brief and concise descriptions are given of the various diseases mentioned, because, in the majority of instances these diseases are described at length earlier in the book, and extended repetition would be unnecessary and undesirable. More space is given to the enumeration of the indications of remedies, so that an intelligent selection can be made. To the list of remedies under each disease are added directions as to the general treatment. These directions have been made as plain, simple and practical as possible, and the recommendations are the results of actual professional experience. When the services of a skillful physician can be obtained, it is true economy and common-sense to employ them in any case at all serious. On the other hand one may easily be so situated as to

be thrown on one's own resources. Under such circumstances this book as a whole should prove invaluable. Any intelligent person can apply the instructions it contains to the greatest advantage, for the preservation or restoration of his own and others' health.

Forms of Medicines for Administration.

REMEDIES to be used homeopathically are prepared, when of insoluble substances, in the form of triturations or powders which are sometimes made up into tablets. Soluble substances may be prepared as triturations, tablets made from triturations, or in fluid form as tinctures, dilutions made from tinctures, or as globules, pellets or little pills, also cones or disks, medicated with the tinctures or dilutions.

Remedies are prepared on the decimal scale, as it is called, one part of the crude drug being added to nine parts of alcohol or finely powdered milk sugar, as the case may be, to make the first decimal, or 1 x. One part of the first decimal added to nine parts of milk sugar or alcohol makes the second decimal, or 2 x, and so on. When the strength of a remedy is not specified in the following pages, the third decimal should be used. It will be convenient to obtain remedies either in the tablet form or as medicated pellets or disks; but tinctures and solutions can be bought, and unmedicated pellets or disks medicated by simply pouring on them as much of the fluid as they will absorb.

Selecting and Using Remedies.

A remedy should be chosen not because it is recommended for a given disease, but because the description of that special remedy is the nearest picture of the patient's condition as a whole, that one can find at the time the prescription is made. Two persons may both have the grip, but one may be almost delirious from pain in the head, the other may have an acute influenza; one may require *Gelsemium*, the other *Arsenicum Iodide*.

The symptoms, not the disease by name should be treated, and when in the course of a disease the picture changes, another remedy will be needed. Do not change a remedy, however, as long as the patient is improving, and when it seems desirable to administer another remedy, omit the giving of any for two or three hours.

The repetition of a dose is almost invariably mentioned in connection with the disease. When not otherwise specified, three pellets or one tablet, or disk may be understood as constituting a dose. As much of a remedy in powdered form may be taken as will cover the tip of a penknife. Five drops of a tincture, ten drops of a dilution, or fifteen pellets may be added to a third of a glass of water, unless otherwise directed, and a teaspoonful taken at one time. A medicine should be prepared in a clean tumbler which should be kept covered

with a saucer or sheet of paper. Use a clean spoon, and never one that has been previously used without afterwards washing it, for any other medicine. Keep the spoon on top of the glass, and not in the medicine. Keep the medicine in a cool place, and give it exactly when it is due. If a dose is forgotten, never double the next one. As the patient improves, the intervals between giving the remedy may be lengthened, *i. e.*, from once an hour to once in two hours, and so on. A dose two or three times a day is sufficient in chronic cases, and the longer a condition has continued the more time should be allowed for favorable results from the action of the remedy to become manifest. In general, it may be said that the use of tea, coffee, alcoholic beverages, or highly spiced food is hostile to the action of homœopathic preparations.

Care of Medicines.

WHILE it is not absolutely necessary to have a medicine chest or case in which to keep remedies, one or the other is a great convenience protecting the vials from sunlight, dust, breakage or being scattered. A medicine closet, drawer or special shelf may answer every purpose for keeping medicines together, and out of children's reach. Every bottle should be plainly labelled, and in pouring out medicine always do so from the side opposite the label, that it may not be stained or loosened. Always buy homœopathic remedies from large and well known pharmacies if possible, not only in order to get reliable preparations, but also that they may be fresh, as some medicines deteriorate with age. Medicines can always be sent safely by mail if desired. One-half ounce and ounce vials are the most serviceable size, while two drachm vials will prove convenient in which to medicate pellets or disks to be carried about with one. Unmedicated pellets or disks can be purchased in any quantity, a half pound box being a favorite size. Suppositories can be ordered by the dozen, cerates by the ounce or more.

Keep vials tightly corked, and do not use the cork in one for another, or use old corks unless they have been well boiled and thoroughly dried. It is well to print in ink on the top of the cork the name of the medicine in the vial to which it belongs. Empty bottles should be well washed in hot water containing a little soda, then carefully rinsed and placed in plain boiling water; boil half an hour, then dry, rinse with alcohol and cork before putting them away, unless they are placed in a box or wrapped in tissue paper.

In addition to a supply of medicines for internal or external use, it will be found an excellent investment to keep the following articles in an accessible place for use in emergencies or sudden illness: fountain syringe, bulb syringe, hot water bag, china bedpan, soft old linen or cotton, absorbent cotton, adhesive plaster, court plaster, safety pins, a few bandages, old flannel, a medicine dropper, a rubber

sheet, clinical thermometer and bath thermometer. A douche pan will be required if douches are to be taken.

General Considerations.

ELSEWHERE in this book the subjects of baths, diet, medical gymnastics, the management of the sick room, etc., are discussed at length. It is, therefore, unnecessary to mention them here except incidentally, but their importance can hardly be too greatly emphasized. Health is a very precious possession, and one that should never be treated lightly. Once lost it is often never regained, or only regained after much suffering or expenditure of time and money. The observation of the common laws of right living will prevent a host of ailments. No dissipation of any of the body's powers or functions should be indulged in. Pure thoughts, pure actions, plenty of work but no overwork, sufficient recreation and outdoor exercise, fresh air in the house, the daily sponge bath with friction, a reasonable amount of sleep in a well ventilated room, keeping the feet dry, drinking several glasses of water each day between meals, wearing loose and suitable clothing, the avoidance of stimulants and over-eating, the cultivation of amiability are all aids to health that nothing else equals. No medicines will take their place.

Again, when one is ill good nursing is highly desirable, and in acute diseases especially will often be the means of turning the scales of life and death in the patient's favor. A trained nurse should be secured if possible, sick persons often make much better progress in the hands of a stranger. If some member of the family must act as nurse she should implicitly obey the doctor's directions, and not let her interest in the patient cause her to do anything contrary to the doctor's orders.

Diseases of the Ear.

Inflammation of the External Ear.

INFLAMMATION and swelling of the visible portion of the ear is not infrequent, and is usually due to injury from an ear pick or other instrument, to lack of cleanliness coupled with some abrasion of the skin; unsanitary surroundings; use of lotions containing harmful ingredients. Inflammation may be superficial, or affect the deeper tissues causing severe pain and swelling, and even little boils.

Aconite.—Two to five drop doses every hour in the beginning of sudden, severe inflammation, with fever, restlessness, great pain locally, and burning headache, flushed face, constant thirst, or, a little later, when the temperature rises, the pulse grows rapid, and pulsation is felt in the ear, give *Ferrum phos.* a dose every hour.

Belladonna.—Throbbing headache; tearing pains in the ear; much

congestion of head and face; mouth dry and hot and throat bright red; alternate chill and heat. A dose every hour.

Hepar Sulph.—Unhealthy condition of the skin; sticking pain in the ear which is sensitive to touch; itching of the entrance to the ear; suppuration, with thin, bad smelling pus. Give as above.

Picric Acid.—Recurring boils of the external ear in debilitated cases; also acute or chronic localized inflammation and tenderness, with debility. Give as above; in chronic cases, three times a day.

Calcareo Carb.—A valuable remedy in these cases in persons of a scrofulous constitution. The skin of the ear is thickened and red, and the entrance filled with cheesy pus; or there is ulceration, and the formation of exuberant granulations. A dose three times a day.

In the beginning of the inflammation apply ice compresses, or paint the surface with tincture of *Iodine*. If a boil develops and pus forms, it must be evacuated; cleanse with a saturated solution of *Boracic acid* in alcohol, and continue the cold applications. Treatment with the borax and alcohol should be repeated two or three times a week until recovery is complete. The patient should rest, eat unstimulating food, and avoid the use of alcohol in any form.

Eczema of the External Ear.

ECZEMA may be due to local cause such as insect bites, the wearing of earrings, irritating dust as among metal-workers, parasites from the scalp, also to diseases of the stomach, kidneys, intestines or uterus, and to rheumatism and gout. Remove the cause.

The usual itching and sense of heat marking the beginning of eczema is often attended by fever in children. Small reddish pimples first appear, and these become watery or pustular. When they burst, crusts form. The acute form lasts from four to six weeks; if the original cause persists, eczema of the moist variety ensues.

Arsenicum.—Dry, scaly, bran-like eruption, with itching and burning, worse from scratching and at night; better in warm air.

Graphites.—Eruption with moist, sticky oozing, and the whole skin of the ear looks unhealthy. Rawness and soreness, especially behind the ears. The patient feels better in the open air.

Mezereum.—Red, moist eruption covered with thick, hard crust; with intense itching extending even into the ear passage; worse at night and from scratching.

Rhus. Tox.—Swelling, burning, itching and tingling of the skin, with watery vesicles around which the skin is red and angry looking; itching better from scratching.

Kali Mur.—Dry, scurfy eruption; obstinate cases in children, with indigestion, constipation, and sores at the corners of the mouth.

A simple dusting powder of starch, oxide of zinc, lycopodium or rice is the best dressing for acute dry eczema; for the moist eruption apply oxide of zinc ointment, or one per cent. ich hyol ointment. Crusts should first be removed by softening them with olive oil or vaseline. As emphasized in the beginning, the removal of the cause of the affection is of great importance, also regulation of diet, and attention to all hygienic rules.

Earache.

THE pressure of hardened wax or some foreign body may cause earache, or exposure to cold or wet, defective teeth, digestive disturbances, or the abuse of quinine. Earache may be a simple neuralgia or symptomatic of acute catarrhal inflammation of the middle ear. Douching the nose is not an infrequent cause of ear troubles.

Aconite.—Recent inflammation from cold or cold winds; ear hot, very painful, and sensitive to touch. *Ferrum phos.* frequently gives even greater relief.

Belladonna.—Severe, boring, or sudden shooting pains in the ears, darting from one ear to the other, with chilliness and great restlessness.

Chamomilla.—Stabbing, cutting, unbearable pains, especially in nervous children; child very fretful, and, if little, wants to be carried all the time.

Pulsatilla.—Sharp, tearing, *pulsating* pains, worse at night, coming in paroxysms, increasing in severity; ringing in the ears and deafness; earache in highly sensitive persons, and in children of that type.

Magnesia Phos.—Purely nervous earache, with pain back of the ear also; worse in cold air, and from washing the face in cold water; better from hot application.

Plantago.—Tearing pains like neuralgia, especially when the teeth are affected.

A dose of the indicated remedy may be taken every fifteen minutes, increasing the intervals as the pain subsides. A hot water bag, bag of hops or salt heated in the oven may alleviate pain, or heat in a teaspoon one part of tincture of aconite, one part of laudanum to two parts of sweet oil, and drop two or three drops into the ear, or apply on absorbent cotton. Mullein oil may be used the same way. Steam from a radiator valve or spout of a teakettle conducted through soft rubber tubing to the ear often proves very soothing. The core of a baked onion applied to the ear will often give relief.

Special attention should be paid to keeping the feet warm and dry, and to regulating the diet. Baths should always be followed by friction.

Running of the Ears.—*Otorrhœa.*

THIS is a symptom, not a disease in itself. It may follow acute catarrhal inflammation of the ear, or measles, scarlatina or diphtheria, and is most common in debilitated individuals, or those having a scrofulous constitution. There is seldom much pain.

Mercurius Viv.—Thick, bloody or offensive discharge, with swelling and tenderness of the glands about the ear, especially when the discharge follows measles or scarlatina.

Calcareæ Carb.—Scrofulous individuals inclined to be fat; flesh is flabby; head sweats; white, thick, sticky discharge, tendency to the formation of little growths in the ear.

Silicea.—Small amount of bad smelling, thin discharge, with ulceration of lining membrane of the ear or disease of the bones.

Hepar Sulph.—Heat and discomfort in the ear which is very sensitive to touch; slight, sour and offensive discharge.

A dose of the indicated remedy three times a day. The ear should be gently syringed with warm water, a soft bulb syringe being preferable that the stream of water may not be forcibly ejected into the ear. After syringing instil peroxide of hydrogen, dry the ear gently but thoroughly with small bits of absorbent cotton, which may be loosely wound on a toothpick, then, with a powder blower blow in a little boracic acid powder.

Constitutional treatment is important; change of air; a liberal, nourishing, unstimulating diet, especially vegetables, milk, cream, cod liver oil. A good preparation of iron may be needed, and frequent sea salt baths with friction, also plenty of fresh air and sunshine.

Deafness.—*Hardness of Hearing.*

DEAFNESS may be due simply to constitutional debility; to sudden blows or loud noises; ulceration, perforation or rupture of the ear drum (tympanum); accumulations of wax; inflammation of the lining mucous membrane, and suppuration; foreign bodies in the ear; hysteria; kidney or brain disease, paralysis of the nerve of hearing, etc.

Cinchona.—Deafness with ringing, humming, roaring or ticking sounds in the ears; vertigo; after loss of blood, or blows, the firing of guns, or other concussion.

Ferrum Phos.—After catching cold, in cold, windy weather, or during general debility with poor blood supply; ringing the ears; rush of blood to the head.

Chenopodium.—Deafness to the sound of the voice, but passing of vehicles are heard; annoying buzzing in the ears; progressive deafness.

Nux Vom.—Hardness of hearing, and buzzing, tingling, whistling noises in the ear, especially while eating, with indigestion.

Hydrobromic Acid.—Deafness, with pulsating ringing in the ears, and great nervousness. This acts as a sedative, and may be prepared by adding thirty drops to three tablespoonfuls of cold water and adding a little sugar. Take two teaspoonfuls every hour.

Pulsatilla.—Deafness following measles, also with darting, tearing or pulsating pain in the ear. If there is a discharge, it is thick, yellowish or yellowish-green.

Causticum.—Difficulty in hearing due to inability to identify the sounds; confusion of hearing; words or steps re-echo in the ears.

Phosphoric Acid.—Roaring in the ears with difficult hearing in nervous and debilitated individuals.

Also *Magnesia phos.* for deafness, or dullness of hearing from weakness of the auditory nerve. *Mercurius viv.* catarrhal deafness caused by a cold or chill, or occurring in syphilitics. *Calcarea carb.* Deafness in scrofulous persons with thickening of the lining membrane of the ear, and enlarged tonsils. *Sulphur* after the abuse of mercury, or in hardness of hearing due to suppressed eruptions. *Belladonna* for deafness following scarlatina.

A dose of the indicated remedy may be given every four hours. The general health must be improved, and the cause of the local condition discovered and removed. Many cases require the skilled care of a specialist. Proper hygiene of the ears prevents many ear troubles. Never box a child's ears, never close healthy ears with cotton unless going into a machine shop or other noisy place or when the entire body is to be submerged as in sea-bathing; never let water run into the ear while shampooing the hair or taking a bath; do not scratch the ear or introduce pins, hair pins, pencils, etc. The excessive use of alcohol and tobacco injures the nerves of the ear. Do not allow the teeth to become or remain decayed.

Diseases of the Eye and Lids.

Inflammation of the Eyelids.—*Blepharitis.*

THIS common affection commences as a simple congestion of the lid border, making the lids look red and swollen. There is slight burn-

ing and smarting, worse from cold winds, smoke, dust and a bright light. The lids adhere in the morning, and a sticky secretion forms dry scales or scabs, beneath which in pronounced cases will be found a raw or ulcerated surface. Pus may form, the eyelids become thickened and the eyelashes fall out. Lack of cleanliness; poor hygienic surroundings; eruptive diseases; the irritation of smoke, wind and dust, and late hours are the usual causes, and especially in young and scrofulous persons, who may or may not have imperfect vision.

Aconite.—Acute inflammation from cold winds or dust, lids red and swollen, great heat, dryness, burning and sensitive to the air. A dose every two hours.

Pulsatilla.—Inflammation of the lids resulting from high living or fat food, and when accompanied by acne of the face; profuse, bland discharges. Give as above.

Hepar Sulph.—Acute inflammation, especially when suppuration seems imminent or has taken place; the lids throb and are sensitive to touch; feel better from warm applications. Give as above.

Calcarea Carb.—Scrofulous, “pot-bellied” children who sweat much about the head; eyelids red, swollen and hard. A dose three times a day.

Mercurius Sol.—Thick, red, swollen, ulcerated lids, sensitive to heat or cold and to touch; profuse acrid watering of the eyes; cutting pains, worse at night; syphilitic persons especially. Give as above.

Antimonium Crud.—Lids adhere on waking in the morning, burn on being opened; eyes dread the light; eyelids itch and burn, and are thickened. Give as above.

Also *Argentum nit.* Inflammation of the lids involving the eyelashes, better from cold air and cold applications. *Apis.* Eyelids much swollen, red, puffy; itching of eyes and lids. *Graphites.* Chronic cases in scrofulous persons subject to eczema, chiefly on the head and behind the ears; edges of eyelids slightly swollen, and covered with dry scales or scarfs; the outer corners of the eyes may crack and bleed on opening the lids.

Simple cosmoline or vaseline may be applied to the margins of the lids to prevent adhesion, but two grains of the yellow oxide of mercury to two drachms of vaseline, well mixed, is even better. In chronic cases where graphites is indicated internally, two grains of the crude drug may be added to the vaseline in place of the mercury, for external application. Improve the general health, and have any error of refraction corrected. When pus forms on the lids, they may be cleansed with peroxide of hydrogen.

Twitching of the Eyelids.—Blepharospasm.

CHILDREN are often affected, especially during their early school

years, with undue winking of the eyelids, associated, at times, with jerky movements of the muscles of the face. This is sometimes of merely nervous origin and occurs also in nervous, delicate adults. When from a foreign body, decayed teeth, inflammation of the eye, ulcer of the cornea, or errors of refraction, remove the cause, and institute proper treatment. When of nervous origin, resort to electricity may be necessary, but most cases can be cured by one of the following remedies:

Agaricus.—Twitching of the lids, with a feeling of heaviness in them, relieved during sleep, and sometimes temporarily by washing in cold water; spasms of the lids. The principal remedy, two-drop doses of the tincture, twice a day.

Ignatia.—Constant winking of the eyelids, with spasmodic action of the muscles of the face in sensitive children or adults, who weep or are frightened easily, and are subject to headache and neuralgia. A dose twice a day.

Cicuta.—Twitching or spasms of the eyelids, with tendency to squint. Give as above.

Stye.

A STYE is a small, painful boil on the eyelids attended by heat, redness, swelling and rapid suppuration. A debilitated condition favors the formation of styes, especially in a scrofulous person; also, exposure to winds, eye-strain, chronic inflammation of the lids or of the covering membrane of the eyeball. In the beginning there is a circumscribed redness and swelling on the edge of the lid, with throbbing pain.

After exposure to cold winds or straining the eyes, threatened stye, or with general inflammation take *Aconite*. *Pulsatilla* will often prevent the formation of pus if given when the first signs of swelling and inflammation appear; especially serviceable for those of a scrofulous constitution. *Hepar sulph.* When pus forms, and *Sulphur* after the stye has healed to prevent recurrence, a dose of the latter remedy night and morning for a week or two. The other remedies may be taken a dose every three hours.

Rest the eyes, avoid a strong light; if there is much inflammation the eyes may be bandaged. Hot bread-and-water poultices will relieve pain and tension, and bring the stye to a head when its contents can be evacuated. Hot fomentations, constantly renewed, also give much comfort. Build up the system by nourishing, simple food, malt and cod liver oil, and observe all hygienic rules.

Inflammation of the Iris.—*Iritis*.

THE iris is the beautiful, colored, contractile membrane which is seen through the cornea or transparent portion of the external coat

of the eyeball, in the front of the eye. In the center of this is a round opening, the pupil. The iris serves as a curtain to regulate the amount of light entering the eye, and aids the latter in accommodating itself to degrees of light by contracting and dilating the pupil.

Inflammation of the iris may be due to catching cold, to overuse of the eyes, injuries, foreign bodies, scrofula, rheumatism, gout, diabetes or other constitutional diseases. From 60 to 75 per cent. of all cases are said to be due to syphilis. Acute iritis lasts from two to six weeks; it may become chronic. There is marked redness, watering of the eyes, sensitiveness to light; some pain, which increases and becomes very severe, and of a neuralgic character, extending many times to the forehead and temples or even the whole head. In chronic cases there is little pain; the iris is discolored.

Aconite.—In the first stage, or, in a sudden reappearance, especially when due to a cold draught of air; great heat, burning, and dryness of the eyes; iritis from injuries.

Belladonna.—Early stages of iritis from a cold, or chronic inflammation following cataract extraction; much redness, and severe throbbing pain in the eye and head.

Mercurius Viv.—Especially in syphilitic cases; pains usually severe in the eyes, forehead and temples, worse at night and in damp weather; great sensitiveness to light; iris discolored; pupil contracted.

Rhus Tox.—Rheumatic iritis, especially if caused by exposure to wet; suppurative inflammation after an operation, with puffy swelling and spasmodic closure of the lids; on opening them tears gush out; pains worse at night.

Also *Arnica* in iritis from wounds. *Bryonia*. Inflammation, and watery discharge after exposure to cold in those subject to rheumatism; sharp, shooting pains in the eyes, through head or down into the face; may be soreness and aching of eyeballs, the eye sore to the touch. A dose of the indicated remedy every two hours in acute cases; three times a day, in chronic cases.

The patient should stay in a darkened room, and preferably in bed to secure rest from movement of the eye muscles, as well as freedom from irritation by light. Avoid the use of alcohol or stimulating foods. A tablespoonful of hamamelis to half a cupful of water, applied on cloths frequently renewed and as hot as can be borne will often greatly relieve pain and congestion. The eye may be washed out twice a day with warm boracic acid solution. The instillation of a one per cent. solution of atropine is very desirable, but should be done under a physician's direction as atropine is a poison. A few drops are dropped into the eye every two or three hours to twice or three times a day; dryness of the throat or flushing of the face are the first signs calling for its discontinuance. Small linen bags three

inches square filled with fine table salt, and heated in an oven, make grateful applications, if cold is preferred, use cloths wrung out in ice water, but do not let them get warm. Do not use ice bags. Cold applications are indicated immediately after wounds to the eye.

Cataract.

THE crystalline lens back of the iris, which focusses the rays of light on the retina, is covered by a highly elastic membrane called its capsule. Any opacity of the lens or its capsule, or both constitutes cataract. This lessening of the transparency of the lens may be due to old age, other diseases of the eye, injuries, excessive heat and light, gout, diabetes, etc., defects of the eye at birth, and other causes. When the fibres that make up the lens have degenerated, no internal remedy will restore transparency, and operative measures offer the only relief, but in the very beginning the remedy indicated in the individual case should certainly be given, and its use persisted in.

Causticum.—Feeling of sand in the eyes, and pressure, heaviness of the lids; burning and itching of the eyes, with desire to keep them closed; aversion to light; winking and twitching of the lids; flickering or sparks before the eyes, and light obscured as from a thick fog or cloud.

Sepia.—Especially in threatened cataract in women, eyes feel weak, worse toward evening, and better in the middle of the day; blurring of light or sudden vanishing of sight; some sharp pains in the eyes, with heaviness and twitching of the lids; headaches which are worse morning and night.

Phosphorus.—Black, floating points before the eyes; distant objects seem to be covered by a smoke or mist; can see better in the half light or by shading the eyes with the hand; eyes give out while reading.

Iodoform.—Recommended by Dr. Norton, specialist in diseases of the eye at the New York Homœopathic College and Hospital, in cases where there are broad lines or patches of flaky substances in the eye, showing a rapidly progressing cataract.

Also *Conium* in cataract due to injury of the eye, and *Calcar phos.* in cataract in scrofulous and much debilitated persons, with much pain in the right eye and side of head. A dose of the indicated remedy two or three times a day.

Squinting.—*Strabismus*.

“CROSSEYED” is a common term for this affection. Sometimes both eyes are affected, but usually only one; the strabismus may be intermittent or constant. It usually exists in connection with far-

sightedness; other predisposing causes are working in a poor light, excessive use of the eyes for near work, weakened eye muscles, disorders of the brain. Squinting is most frequent in children, and may sometimes be corrected by glasses, without resorting to operative interference. Remedies are of use in squinting due to disturbances of the nervous system.

Cicuta.—Spasmodic squinting in children, or squinting in children subject to convulsions. *Hyoscyamus* or *Belladonna* in squinting in sensitive, nervous children or those suffering from epilepsy. A dose twice a day.

Whatever refractive error of the eyes there may be should be corrected by glasses prescribed by a good oculist. As recovery may take place, with proper care of a child's eyes, it is better not to have an operation performed in very young children, and wait until the age of ten years or even later. Never let a child use the eyes in a poor light, or facing a strong light. When there is squinting, all near work should be avoided as much as possible.

Conjunctivitis.—*Inflammation of the Lining Membrane of the Eyelids.*

A LIST of remedies indicated in this disease, and an outline of the general treatment is appended to the brief descriptions of its different forms.

Catarrhal Conjunctivitis.

THE mucous membrane lining the eyelids, and which is reflected over the ball of the eye, is called the conjunctiva. It may become acutely inflamed from exposure to cold, wind, dust, or the disease may be due to an epidemic or to infection through a towel, handkerchief or even the fingers of a person already affected, for the discharge from the eyes is contagious. Catarrhal conjunctivitis may accompany other diseases. It is most common in the spring and fall, but may occur at all times of the year, and at all ages. Sometimes, but not always, there is inflammation of the lids, blepharitis, which has been already described. The white of the eye is highly inflamed, the lids itch and smart, eyes feel hot and heavy and as if sand was in them; and there is more or less bland, or partly mucous pus-like discharge. Acute attacks last from two to three weeks, but become chronic if neglected.

There is a form of acute catarrhal conjunctivitis known as Epidemic Conjunctivitis or Pink Eye. This is due to a small bacillus, and is generally communicated through the secretion from some affected eye.

Purulent Conjunctivitis.—*Gonorrheal Conjunctivitis.*

IN infants this form is called Ophthalmia Neonatorum. The cause,

whether in infants or adults, is the contagion present in gonorrheal or syphilitic discharges. All the symptoms present in the ordinary catarrhal form are seen in this, only more prominent. Special symptoms are the elevation of the conjunctiva in a ridge surrounding the eyeball, little points above the surface of the conjunctiva which bleed, and a thin, semi-purulent discharge, becoming pus-like, thick and yellow; heat and burning of the eyes, puffiness of the lids.

Granular Conjunctivitis.—*Trachoma.*

ALMOST everyone has heard of trachoma since so many immigrants reaching these shores have been sent back by the medical inspectors because they had this disease. It is an infectious inflammation and thickening of the conjunctiva with formation of granulations on the inside of the eyelids, and finally a pus-like discharge highly contagious. When the disease is abating, narrow, white, linear scars form; but this affection is very obstinate, lasts months and even years, and relapses often occur.

Diphtheritic Conjunctivitis.—*Croupous Conjunctivitis.*

THESE are two more forms of the same disease, the former always due to infection by the specific germ of diphtheria, but this bacillus is also found in the croupous variety. In diphtheritic conjunctivitis the tissues are infiltrated, and may die; there is a purulent discharge, much prostration of the whole system as in diphtheria. It occurs in children, but is rather rare.

The croupous form differs in that the exudation is on the surface of the conjunctiva, and does not extend into the tissues beneath. It forms a fibrinous membrane which may be removed, leaving a bleeding surface. Chemical or mechanical irritants and excessive heat as well as germs, may cause this variety.

Scrofulous Conjunctivitis or Ophthalmia.

THIS form has several other names, of less importance than the causes and symptoms, for it is a common disease in scrofulous or consumptive children, especially under bad hygienic conditions, lack of cleanliness and proper food. These children often have eczema, enlarged glands, discharge from the ears, chronic nasal catarrh, etc.

On the conjunctiva will be noticed small, reddish elevations, surrounded by an area of redness; there is pain, watering of the eyes and aversion to light; matter forms and sometimes the elevations ulcerate; often the lids tend to stick together; relapses are common.

Aconite.—In the first stage of any inflammation of the conjunctiva when the eyes are red, burning and very painful, with great dryness or there may be some watering of the eyes; especially useful in

inflammation from a foreign body, in acute catarrhal conjunctivitis or acute aggravation of the granular form. Cold local applications supplement this remedy well.

Arsenicum.—Acute catarrhal conjunctivitis, with ridge-like swelling; hot, scalding tears, burning pains worse at night; also in chronic cases when the discharges are thin and acrid, excoriating the eyelids and cheek.

Argentum Nit.—Any form of purulent inflammation of the conjunctiva with very marked ridge-like swelling, profuse discharge of matter, and commencing haziness of the cornea, with tendency of the tissues to slough.

Aurum Met.—Scrofulous ophthalmia; the white of the eye blood-shot and ulcerated; much aversion to light; profuse, scalding tears, eyes sensitive to touch; a valuable remedy in trachoma.

Mercurius Sol.—Scrofulous ophthalmia, and in purulent conjunctivitis in adults or children when the discharges are thin and excoriating; profuse burning, excoriating, watery flow, or thin, acrid, partly purulent discharges; generally severe pains worse at night.

Pulsatilla.—Scrofulous, and purulent conjunctivitis; in scrofulous individuals, when little raised points on the conjunctiva only matterate; in catarrhal and purulent, when the discharge is blank and profuse; in trachoma, with very fine granulations. Thick, white or yellow, bland, and generally profuse discharges are especially characteristic of this remedy; pains better out of doors.

Calcarea Carb.—Inflammation due to exposure to wet; all symptoms worse during damp weather; catarrhal conjunctivitis in fat, unhealthy, scrofulous children.

Belladonna.—Early stages of inflammation, with great dryness of the eyes; extreme sensitiveness to light; throbbing pains.

Hepar Sulph.—Discharge of pus, with ulceration of the cornea; intense aversion to light; great redness of the eye; lids swollen, close spasmodically, sensitive to touch; yellowish white discharge.

Sepia.—Recurring attacks, especially in the spring of the year, or cases always worse in hot weather, also in women with uterine troubles.

Sulphur.—Catarrhal cases, especially chronic and in scrofulous children with skin eruptions; eyes worse from bathing, child will not have them touched; sharp, shooting, cutting pains.

Always remove the cause of the trouble so far as possible, stop overuse of the eyes, protect them from exposure to light, dust, etc.

Foreign bodies must be removed. In simple inflammation wear smoked glasses. Do not apply home-made poultices of any kind; they may make a simple case very serious. Compresses wet with ice water or with water as hot as can be borne often afford relief; *change frequently*. Cleanliness is always essential; as a wash, solution of boric acid, ten grains to the ounce of warm water, can always be used with safety.

Discharges from the eye must frequently be removed with little pieces of soft old linen or absorbent cotton, which must afterwards be burned.

In purulent ophthalmia in infants, when the discharge is profuse, wash the eyes with warm water, dry the lids gently and with a medicine or eye-dropper, instill one or two drops, not more, of a solution of nitrate of silver, ten grains to one ounce, once a day. The same treatment is equally good for adults infected by gonorrheal or syphilitic discharges. When but one eye is affected, the other may be protected by covering it with a watch crystal, held in place by strips of adhesive or surgeon's plaster. Remember the discharge is very contagious; the patient's towels, etc. must never be used by anyone, and the hands of the attendant should be thoroughly washed in 1 to 40 carbolic acid solution. For copious, pus-like discharges, frequent washing out of the eye with warm water containing as much boric acid as it will dissolve, is recommended, or use peroxide of hydrogen, or formalin, 1 to 2,000.

In diphtheritic or croupous conjunctivitis strong astringents must not be applied to the lids: the conjunctiva may be brushed over with lemon juice every six hours. Keep the eyes clean with boric acid solution. Hot applications are better in these cases than cold.

In all forms of inflammation where the lids tend to adhere, vaseline or cosmoline may be applied.

In trachoma the affected surface may be brushed over once a day with the following preparation: one ounce of glycerine to which six grains of carbolic acid have been added. Use a camel's hair brush. Cold compresses are beneficial.

In all eye affections the general health must be looked to; simple, nourishing, unstimulating food taken, good hygienic surroundings secured, and in cases of debility some standard preparation of iron, arsenic and quinine used, or cod liver oil.

Ulcers of the Cornea.

ULCERS may follow inflammation of the conjunctiva or be caused by foreign bodies, or in the aged by defective nutrition. There is great aversion to light; watering and redness of the eye, and on the cornea first a grayish-yellow spot which changes to a superficial or deep ulcer with sloughing margins; there is more or less pain, and the eyes are kept tightly shut.

Rhus. Tox.—Superficial ulcer, with extreme sensitiveness to the light and profuse flow of tears.

Conium.—Superficial ulceration with little or no redness of the conjunctiva, but intense sensitiveness to the light, and much watering of the eyes.

Mercurius Sol.—Superficial or deep ulcers, especially in syphilitic or scrofulous individuals with profuse, burning, excoriating flow of tears, much pain; lids thick, red and swollen by the thin, acrid discharge.

Hepar Sulph.—Deep, sloughing ulcers with severe, aching, throbbing, stinging pains, better from warmth, worse from cold and uncovering the eye; eye sensitive to light and touch.

Argentum Nit.—Ulcerations of the cornea in newborn infants, with profuse discharge from the eyes.

Silicea.—Sloughing ulcers, and small round ulcers, slow to heal.

Also *Calcarea carb.* Ulcerations in fat, flabby children with sweating of the head. *Sulphur*, acute and chronic cases, with pus, splinter-like, shooting pains in the eye toward morning; scrofulous individuals. A dose of the indicated remedy three times a day.

Small pieces of flannel dipped in very hot water, applied to the eye and changed about every two minutes, the applications continued from ten to thirty minutes at a time, three to eight times a day will give much relief; also bandaging, using some pressure.

With a medicine or eye-dropper apply atropine one grain to the ounce, twice a day; if the ulcer is central, or eserine, one-half grain to one ounce once a day, if the ulcer is near the margin and deep.

Build up the general health and stay in the house; keep the bowels open; protect the eyes by smoked glasses if a bandage is not used, but the latter is strongly recommended.

Rheumatic Pains in the Eyes.

DURING inflammatory rheumatism, the eyes may be exceedingly painful, and temporary blindness may accompany the disease.

Aconite.—When there is much soreness, pain, feeling of sand in the eyes, roughness and irritation.

Apis.—Rheumatic inflammation of the left eye; the white of the eye looks like raw meat, redness extending over the cheek.

Cimicifuga.—Soreness of the eyeballs on moving eyes; sensitiveness to light and touch; intense aching pain.

Spigelia.—Sharp, tearing pains with pressure in the eyeballs.

Belladonna.—The eye feels too large for the socket, and as if it would burst; much pain and sensitiveness to light.

Also *Bryonia*. Sense of pressure and heaviness in the eyes; intermittent pains much worse on moving the eyeballs, or opening the eyes. *Sulphur*. Dullness; spots before the eyes. *Rhus*. Redness, swelling and aching of the eyes; stiffness and soreness of the lids; dimness of vision. A dose of the indicated remedy three times a day. The remedies under "Rheumatism" should be consulted.

Specks on the Cornea.

LITTLE opaque spots on the cornea may be left after scrofulous inflammation has passed away. These may be removed by daily doses of *Sulphur* or *Euphrasia*.

Watery Eyes.

WHEN the eyes are watery, or prone to become so, from slight exposure to wind or cold, the difficulty may be obviated with daily doses of *Pulsatilla*, *Mercurius vivus* or *Lachesis*. Blood-shot eyes will be relieved by daily doses of *Euphrasia*.

Weakness of the Sight.—*Amblyopia*.

THE term amblyopia signifies a reduction of the normal power of sight which cannot be relieved by glasses, and which is not dependent upon any visible changes in the eye, although occasionally the term is used for poor sight when some changes can be discovered. Absolute blindness unaccompanied by changes in the eye, has another name, *amaurosis*.

To know the different causes of amblyopia, is to know to a certain extent what preventative or curative measures to take, for instance the excessive use of tobacco and alcohol; malaria; syphilis; some forms of kidney disease, hysteria, large doses of quinine; exposure to a strong electric light and to the glare of snow all may result in this disease. Blows on the head, loss of blood, and a stroke of lightning are occasional causes. Many other causes are mentioned in connection with the remedies.

Blindness to certain colors may exist from birth, or occur afterward from some disturbance of the nerve fibres of the eyes.

For SIMPLE WEAKNESS OF SIGHT in plethoric persons, give *Belladonna*; for scrofulous individuals, *Calcarea*; for weak or debilitated individuals, *China*; for nervous persons, *Hyoscyamus*. For those whose sight is impaired from biliary derangement, *Sepia* or *Sulphur*. For INCIPIENT AMAUROSIS, *Aurum*, *Sepia*, *Sulphur*. For COMPLETE AMAUROSIS, not incurable, give *Belladonna* to persons of full habit; *Calcarea* to persons who have a scrofulous tendency; *Mercurius*, for those suffering from hepatic derangement; *Phosphorus*, for those

suffering from catarrhal affections; and for those subject to sick headache, *Sepia*. For TORPID WEAKNESS OF SIGHT, *Phosphoric acid*. For weakness of sight brought on by fine work, give *Belladonna* or *Ruta*. For that which occurs from old age, give *Baryta carb.*, *Opium* or *Secale cornutum*. Where weakness of vision occurs after suppression of the menses, or hemorrhoids, give *Pulsatilla* or *Lycopodium*. For that occasioned by suppression of measles, *Causticum*, *Stramonium* or *Sulphur*. For that supervening upon rheumatism, give *Belladonna*, *Pulsatilla* or *Rhus tox.* For that attendant on gout, give *Nux vom.* or *Colchicum*. For that caused by the abuse of mercury, give *Nitric acid*. For that caused by worms, give *Cina*. For that occasioned by diarrhœa, give *Merc. viv.* For that brought on by loss of blood, *China*. For that produced by scrofula, give *Arsenicum*, *Calcareo* or *Nitric acid*. When produced by cold in the eyes, *Dulcamara* or *Nux vomica*. That produced by blows or concussions requires *Arnica*, *Ruta*, *Euphrasia*. The remedies chosen must not be repeated oftener than once a day. When weakness of sight is attended with nervous headache, give *Aurum*, *Belladonna*, *Bryonia*, *Sepia* or *Sulphur*. If by congestion of blood to the head, give *Belladonna*, *China* and *Phosphorus*. For that attendant on deafness or noises, give *Cicuta*, *Nitric acid* or *Pulsatilla*. The remedies need not be repeated more frequently than once or twice in twenty-four hours. If weakness of vision is attended by gastric or abdominal ailments, give *Cocculus*, *Nux vom.*, *Ignatia* or *Pulsatilla*. If attended by derangements of the womb, give *Calcareo* or *Sepia*. If by pulmonary complaints, give *Phosphorus*, *Lycopodium*, *Calcareo* and *Sulphur*. If by disease of the heart, *Lachesis*, *Phosphorus*, *Pulsatilla*, *Sepia* and *Spigelia*. If by epilepsy, spasm or hysteria, *Hyoscyamus*, *Opium*, *Stramonium* or *Sulphur*. The remedy may be repeated, if necessary, every twenty-four hours.

The particular indications for several of the remedies may be stated as follows:

Aurum.—The upper half of the field of vision seems to be covered by a black body, the lower half is visible; everything is seen double, and one object mixed with another; sudden attacks after scarlet fever, or during confinement after delivery.

Belladonna.—Dimness of vision or actual blindness; objects have a double rim or outline, look red; a large halo sometimes red, sometimes broken into rays, appears around the flame of a candle; flashes of light or sparks before the eyes; pupils of the eyes dilate; eyes feel dry.

Arsenicum.—A valuable remedy in loss of vision dependent upon the use of tobacco, or upon wasting away of the optic nerve.

Calcareo Carb.—Farsightedness, but only one side of objects is visible; dimness of sight after getting the head cold; flickering, sparks and black spots before the eyes; light is painful.

Causticum.—Sensitiveness to light which causes constant winking, flickering before the eyes as from a swarm of insects, winking causes the appearance of sparks of fire before the eyes even on a bright day; dimness and indistinct vision; as if a veil or thick cloud was before the eyes; transient dimness of vision on blowing the nose.

China.—Dimness and weakness of sight in malaria, and with roaring in the ears after loss of blood, also blurring of objects, generally dilatation of the pupils, aching of the eyes on attempting to read or write.

Cicuta.—Objects appear double and black, and to alternately approach and recede, for this reason the inclination on standing is to hold on to something.

Cina.—On rising from bed all becomes black before the eyes, with dizziness and faintness, and unsteadiness on walking, relieved by lying down; yellow vision; on reading, the letters are blurred; eyesight better from pressure and rubbing the eyes.

Cimicifuga.—Aching pains of the eyeballs and black specks before the eyes, especially during menstruation.

Gelsemium.—Dimness of sight and vertigo; smoky appearance before the eyes, with pain above them; confusion of sight, objects appear double but by an effort appear single; blindness. A valuable remedy in paralysis of the nerves, and in disturbances of vision following apoplexy.

Hyoscyamus.—Vision obscured; objects seem indistinct; sensation as if a veil were before the eyes; deceptive vision, one of two equal sized flames seems smaller than the other or larger; things not present are imagined seen.

Lycopodium.—Especially valuable in “night blindness” or “moon blindness” caused by exposure to strong brilliant lights, a tropical sun or working before a furnace; evening light blinds the eyes; only half an object is seen; floating black spots before the eyes at a short distance.

Nux Vom.—The chief remedy for impairment of vision due chiefly to the use of alcohol or even to dissipation in general; beneficial after the excessive use of tobacco; vision cloudy, eyes cannot bear the daylight, and vision is obscured, especially in the morning.

Phosphorus.—Cloudiness or dimness of vision; everything seems in a mist; green halo around the light of a candle; vision better in the morning, in twilight, and when shading the eyes with the hands; black floating points before the eyes; eyes give out while reading.

Ruta.—Blurring of vision, watering of the eyes, letters seem to run together, these symptoms caused or made worse from reading or doing fine work; eyes weak, ache and burn, worse in the evening.

Sepia.—Fiery sparks and zigzags before the eyes, with great weakness; vision obscured as if by a veil, better on lying down, worse during menstruation, and mornings and evenings.

Silicea.—Blackness before the eyes after a headache; letters run together and look pale; black spots before the eyes.

Sulphur.—Heaviness and aching of the eyeballs when reading or writing, with dimness of vision as in a fog, seems better from slightly pressing or rubbing the eyes; both near and distant objects appear as if veiled.

Veratrum Vir.—Dimness of vision, faintness, and even blindness on walking; vertigo and pain from the light relieved by closing eyes, and lying down; unsteady vision; sympathetic eye troubles after great nervous strain.

A dose of the indicated remedy every night. By proper care much may be done to prevent or cure dimness of vision. Never work or read in the twilight or facing a strong light. Have any refractive errors corrected by glasses. Do not over-eat, or eat rich or stimulating foods, or use tobacco, stimulants or any drug to excess. Avoid all forms of dissipation, mental or physical.

Treatment should be begun at once for any disease such as gonorrhea, syphilis, diabetes, Bright's disease, etc. Consider hysteria a disgrace, and endeavor to control all the emotions, at the same time improving the general health by nourishing food, exercise out of doors, baths, massage and electricity. When exposed to a strong light or glare as when at sea, or when there is much snow, wear smoked glasses. Protect the eyes from high, cold winds and dust. Avoid late hours and overwork or excitement; don't worry.

Diseases of the Respiratory Organs.

Bleeding from the Nose.—*Epistaxis*.

Hamamelis 1 x.—Ten drops in one-third of a glass of water, and a teaspoonful taken every ten minutes will usually quickly relieve any ordinary attack of nose-bleed, even when bleeding has continued for some time, when due to a fall, blow or no apparent cause.

Ferrum Phos.—Frequently recurring hemorrhages from the nose, especially in excitable young or full-blooded persons, or in delicate children. A dose every ten or fifteen minutes.

Aconite.—Profuse and continued bleeding in full-blooded persons, or after getting over-heated, with full, rapid bounding pulse and feverishness; athletes after violent exercise. Give as above.

China 1 x.—Great exhaustion, paleness and faintness from loss of blood; nose-bleed in weak and debilitated subjects. A dose every half hour or more.

Arnica.—Nose-bleed resulting from direct injuries. A dose every ten or fifteen minutes.

Ferrum Mur 1 x.—Nose-bleed during fevers or malaria. A dose every half hour or more.

Erigeron.—Three-drop doses of the oil in severe nose-bleeds, especially if the blood is bright red, and the flow increased by every movement of the patient.

In a simple attack of bleeding from the nose, press upon the affected side, just below the bone, with the finger nail. A clot will frequently form and check bleeding, if this treatment is continued three or four minutes. Ice or ice water to the nose, forehead and back of the neck is serviceable. An injection of vinegar or pure lemon juice into the nose, or of peroxide of hydrogen will often relieve bad cases. Powdered tannin may be snuffed up, or a pledget of styptic cotton, iodoform or sterilized gauze inserted in the nostril affected.

A noted physician having a large and successful practice, recommends passing a long strip of bacon rind through the nostril, and allowing it to remain there some time.

Polypus in the Nose.

SMALL fleshy or mucous growths in the nose occasion difficulty in breathing, sometimes violent sneezing, and a watery discharge which may become purulent. Proper treatment should be at once instituted, as any interference with nasal respiration affects the health of the whole body, by lessening the amount of oxygen received by the blood through the lungs. Also mouth breathing is a prolific cause of disease of the respiratory passages.

Calcareo Carb.—Rapidly developing fleshy growths in the nose in persons of scrofulous constitution. A dose every four hours.

Teucrium.—Small, mucous growths in the nose in those having chronic catarrh; feeling as if the nose were stopped up; blowing and sneezing give no relief. Give as above.

Phosphorus.—Growths in the nose that bleed easily; frequent blowing of the nose, with resulting slight show of blood. Give as above.

Also *Sanguinaria can.* internally for mucous polypi that bleed profusely, and powdered *sanguinaria nitr.* applied directly to the growth daily by means of a powder blower. While constitutional treatment

is always indicated, it is best to have the growth removed by a competent physician. This can be done by the use of cocaine and a wire snare or loop, making it a simple and practically painless operation.

Cold in the Head.—*Acute Rhinitis.*

SUDDEN changes of temperature, and the chilling of the overheated or sensitive body by draughts of air are the most frequent causes of this affection.

Other exciting causes are damp or wet feet or clothing, irritation and poisoning of the lining membrane of the nasal passages by dust, noxious fumes, chemicals, etc., great depression of the system, sleeping in draughts, and sometimes indigestion. Whether a simple cold is infectious, has not been absolutely determined. With the symptoms everyone is familiar; they are well emphasized under the indications of remedies.

Camphor.—After getting damp or wet, or being exposed for some time in damp, wet or foggy weather; in the very beginning with chilly, shivery sensations; back feels cold; sudden sneezing. A drop or two on sugar every ten or fifteen minutes for several doses.

Aconite.—After exposure to cold, dry winds; standing on cold pavements, or being out long in cold weather especially with snow on the ground; give at once if there is chilliness; feverishness but cannot get warm; thirst; sneezing; watering of the eyes and nose; throat rough; whole system feels depressed. A dose every half hour, increasing the interval.

Belladonna.—Follows *Aconite* well when symptoms become more marked, and with watery discharge from nose and sneezing; the throat is affected, feels raw and intensely sore, is a vivid red, and swallowing is painful; face flushed and headache in forehead and temples. A dose every hour.

Arsenicum Iod.—When the cold is well started and chiefly in the nose, though with some headache in forehead; constant desire to sneeze; frequent sneezing without relief; constant running of thin watery, acrid discharge making nose and upper lip sore; burning in the nasal passages and throat and some soreness. Give as above.

Mercurius Viv.—Copious discharge of thick, acrid mucus; bones of the nose feel sore; frequent sneezing and swallowing of the saliva; perspiration; catarrhal headache. A dose every hour or two.

Nux Vom.—Nose stopped up at night; feels stopped up in daytime; or sometimes free then suddenly obstructed; running of mucus in the daytime; severe headache; creeping chills are felt even if near the fire. Give as above.

Sanguinaria.—Much soreness of the palate, and the back of the mouth, worse on the right side; throat feels as if scalded; loss of taste and smell; constant acrid, watery discharge from the nose; nostrils sore; catarrhal headache; may be deafness and dizziness. Give as above.

Pulsatilla.—Thick, copious, disagreeable, greenish-yellow discharge, may be lumpy; loss of smell and taste; constant chilliness; all symptoms better out of doors; worse evenings. A dose every two hours.

Consult the medicinal treatment under "La Grippe," especially noting the indications for *Gelsemium*.

Take the indicated remedy regularly and faithfully. A cold needs to be followed up, and as it shifts its location, or as new symptoms arise, the remedy must be changed, but this does not mean a new remedy every five or six hours.

During an acute attack stay in the house, if possible, and preferably in bed. In the beginning, at bedtime, take a hot foot bath to which a little mustard may be added, and drink a glass of hot lemonade or gruel. If very feverish, the diet should be light, milk, gruels and broths. Ordinarily a generous, but unstimulating, nourishing diet is called for. If unable to remain in the house, unnecessary exposure, draughts, and overwork should be avoided, especially protect the feet from dampness, and breathe through the nose if possible.

The inhalation of the steam of two drachms of tincture of benzoin to a pint of water, heated to the boiling point, will soothe the membrane of the nose and throat. When the throat is involved consult the section on "Inflammation of the Throat," for the local treatment. Very hot fomentations applied over the forehead and eyes often give great relief to the pains in the head, especially when there is much swelling in the upper air passages. Seiler's tablets to be used as a nasal douche, and as recommended on page 239, are excellent.

Above all, preventive measures should be faithfully carried out, that the system may not be debilitated by frequent colds, and a fertile soil created for the development of other diseases such as diphtheria, la grippe, bronchitis and pneumonia. These measures include the cold or tepid sponge bath every morning, with friction; frequent bathing of the neck and chest with cold water, and subsequent brisk rubbing; avoidance of unnecessary wraps about the throat; outdoor exercise, breathing deeply *through the nose*, with forcible expiration; protection of the feet from dampness, and the abdomen from cold; immediate changing of wet clothes, and the avoidance of draughts and overheated rooms. Nourishing food, good ventilation, sufficient sleep, and a cheerful spirit are recommended.

Chronic Nasal Catarrh.—*Chronic Rhinitis.*

CHRONIC nasal catarrh most frequently follows the acute form,

although injuries and irritants, syphilis, tuberculosis and extreme debility may be sufficient causes. One form of this chronic affection is characterized by swelling and increase of the tissues in the nose, the other by their shrinking and drying up. The latter often follows the former, with symptoms reversed, that is, breathing through the nose is unobstructed, there is little sneezing, the discharge at first is slight, then scabs form, but finally there is a very putrid discharge due to the decomposition of the secretions, or to ozena, which is an ulceration of the nasal cavities, with loss of smell.

When the tissues swell and become thickened, nasal breathing is difficult, and there is a most annoying discharge which may be thin or thick, scanty or copious, bland or excoriating; white, discolored, or bloody. When it dries in the nose it causes tickling, fullness or pain, with dull pains in the forehead and eyes. In its simplest form no appreciable shrinking or increase of the tissues may be noticeable.

Pulsatilla.—See the indications given under “Cold in the Head.”

Ammonium Mur.—Clear, watery, corrosive mucus running from the nose; itching in the nose; stoppage of the nostrils, in children preventing them from sleeping, and causing nervous starting when falling asleep.

Argentum Nit.—Bloody and purulent nasal discharge; ulcers and erosions in the nose, covered with yellow crusts; itching; headache, with chilliness and sneezing.

Calcarea Carb.—Offensive smell in the nose like rotten eggs; nose dry and stuffy at night, free during the day; sore, ulcerated nostrils; chronic hoarseness; glands in the neck enlarge; (*calcarea iod.* is an excellent remedy when the last named symptom is present, and in those of a scrofulous constitution) tendency to grow fat; head sweats during sleep.

Aurum.—Especially valuable when there is decay of the nasal bones, very foul discharge; nose obstructed by crusts; nostrils ulcerated; burning, itching, and smarting in the nose; after the abuse of mercury in syphilitic subjects.

Hydrastis.—Thick, yellow, sticky discharge, dropping back into the throat, and causing hawking; catarrhal headache in forehead; constipation; constant tendency to “catch cold.”

Hepar Sulph.—Swelling and boil-like painfulness of the nose; sensitiveness to every draught; pus-like discharge sometimes bloody; catarrh of one nostril; tonsils and glands in the neck swollen and hard.

Mercurius Sol.—Syphilitic ulceration of the bones of the nose, with profuse watery, or greenish pus-like discharge. *Mercurius iod.*

Tough, white or yellowish mucus especially in the back of the nose; cases of long standing; also profuse, acrid, long-lasting discharges which excoriate the nostrils and upper lip; shooting pains at the root of the nose.

Also *kali bich.* for tenacious, stringy, yellow mucous discharge, with pressive pain and obstruction of and ulceration in the nose. *Silicea.* Nasal passages dry, painful, excoriated, covered with crusts; nasal bones affected; discharge acrid and corroding. *Graphites.* Dry scabs in the nose; sore, cracked, and ulcerated nostrils; tough, lumpy, bloody, or yellow; foul discharge; fleshy persons and those with eczema. *Sulphur.* Chronic, obstinate cases, especially in thin people with coarse skin and hair. *Alumina.* Chronic catarrh in old people, with hard scabs, and greenish-yellow discharge. A dose of the indicated remedy three times a day.

An excellent cleansing solution for douching, or syringing out the nasal passages is made by adding ten grains each of salt and bicarbonate of soda to four ounces of warm water. Glycothymoline one part, to three or four parts of warm water is a mild and soothing antiseptic. Two Seiler's tablets dissolved in from four to six ounces of warm water can be fully recommended. Any one of these cleansing solutions may be used two or three times a day. Pledgets of absorbent cotton wet with peroxide of hydrogen and placed in the nose will soften even very hard crusts; any bland oil like liquid vaseline, cosmoline or albolene may be applied with an oil spray; pine-needle oil and eucalyptus are also used. When there is much chronic swelling of the nasal tissues, surgical interference may be necessary.

Hay Fever.—Hay Asthma.—Rose Cold.

THE pollen of plants excites attacks of this disease, which occurs more often in the male, and in persons of an excessively nervous organization. The symptoms are well described on earlier pages of this book, and are chiefly those of acute influenza, with those of bronchitis or asthma in addition. May, June, the latter part of August and September are the critical periods for sufferers from this complaint, which occurs annually, and lasts from four to six weeks.

Arsenicum Iod. 2 x.—Constant inclination to sneeze, and sneezing which gives no relief; acrid discharge from the nose making it very sore, as also the upper lip; glands of the back of the mouth enlarged and sore; great prostration; burning and itching of the nose; symptoms worse after midnight; hay fever, especially in delicate or debilitated individuals.

Inpecac. 2 x.—May be given in alternation with arsenicum, when in addition to the above symptoms there is wheezing, difficult breathing with great feeling of anxiety, and pressure in the chest; constriction and cough.

Euphrasia.—Irritation and sneezing all day, with copious, un-irritating discharge from the nose, but profuse, excoriating watering of the eyes, with swelling, burning, itching and redness of the lids, causing constant desire to rub them.

Sabadilla.—Spasmodic and severe paroxysmal sneezing in the morning with excessive or slight catarrhal discharge; one or the other nostril stuffed up; watering of the eyes following sneezing; oppressed breathing, and cough at night.

Terpine Hydrate.—The author cannot vouch for the efficiency of this remedy, but it is highly recommended by good authorities in fifteen grain doses, in capsules, three or four times a day in the twenty-four hours.

Also *Naphthalin*, especially where, with the influenza there is full feeling in the forehead, puffiness of the face, and much asthma. This remedy may also be given as a preventative, or *Cepa* which has im-moderate sneezing; profuse bland or excoriating discharge from the nose, with itching and obstruction of the nose; headache; loss of appetite; broken sleep; slight hoarseness; tickling in the throat and cough; especially if the attack is made worse by dust or the smell of onions. *Gelsemium*. For great prostration, and intense headache in the forehead or back of the neck, with dryness of the nasal passages. A dose of the indicated remedy every three hours.

About two weeks before the attack is expected wash the passages of the nose and where they lead into the throat with glyco-thymoline or hydrozone, one to ten, using cold boiled water to dilute the remedy, and after ten days increasing the strength to one to four. Use a syringe or nasal douche. Seiler's Tablets, two to four ounces of water may be used. During an attack a ten per cent. solution of naphthalin or a two per cent. solution of menthol may be dropped or sprayed into the nasal cavities.

Change of climate is the first thing to be thought of, from the country to the shore or to the Adirondacks or White Mountains, or take a sea voyage. Live hygienically, abstemiously, and with regularity; avoid excitement, and use no stimulants.

La Grippe.—Grip.—Epidemic Influenza.

THE grip is not a disease needing much introduction to the readers of this book, as probably nearly every one has suffered from it. The first American epidemic occurred in 1655, but within the past ten years outbreaks, especially in large cities, have been numerous and serious. This is a contagious specific disease, the organism causing it having been identified by Pfeiffer of Berlin in 1892. Its name is very appropriate, being taken from the French verb *gripper*, to seize, which it certainly does both suddenly and violently. The contagion is probably transmitted by means of the moist accretions of the mucous

(lining) membrane of the respiratory tract, and the period of incubation is only two or three days. Although epidemic influenza manifests itself in several forms, there are two principal ones, the catarrhal and the nervous, according as the symptoms of the one or the other are most prominent; but, as a basis for selecting the remedy indicated, names are of far less importance than the careful observation of all the symptoms.

Lowered vitality; damp, cold, murky weather; filth in the streets, and dirt and dust in the air; overwork, bad ventilation in houses, shops, theatres, street cars, etc., all predispose one to the disease, also breathing through the mouth which causes congestion of the sensitive mucous membrane, and allows irritating substances to pass to the lower respiratory tract that the hairs in the nose would otherwise strain from the air, at the same time the air is being warmed.

The onset of grip is usually abrupt. A majority of the following symptoms are generally present. There is general chilliness or a severe chill, followed by the speedy development of coryza; feverishness, followed by quickly rising temperature; aching all over as if beaten; severe bursting, tearing headache; profound prostration which continues throughout the attack; much depression of spirits, restlessness, and sleeplessness. There may be disturbance of the stomach and intestines, with nausea, abdominal tenderness, and diarrhœa. The most agonizing pain may be in the eyeballs and at the root of the nose, but may be most severe in the back of the head and nape of the neck. Delirium may occur in the pronounced nervous form of the disease. Convalescence is slow. When death results, it is generally from some complication such as bronchitis, bronchopneumonia, cerebro-spinal meningitis. Grip often leaves the sufferer with such after-effects as insomnia, neuralgia, pleurisy, abscess of the lung, kidney or heart disease.

Gelsemium, 1 x.—Early, often and almost invariably in the beginning. Chilliness, yet feverishness; heat of the head and face; dull headache, especially of the back of the head; great prostration; full feeling at the root of the nose; eyes heavy and reddened, drowsiness, languor; full, frequent pulse; little thirst, bruised pains in the back, and all over; dizziness. Ten drops of the tincture, *i. e.*, 1 x new style, Φ old style, to one-half a glass of water, a teaspoonful every hour

Aconite.—May be called for in the earliest stage when there is great restlessness; high fever; hot, dry skin, dry, violent racking cough. A dose every hour.

Arsenicum Iod.—Marked catarrhal symptoms, affecting the eyes, nose, and throat; acrid, copious, irritating discharges; great prostration; restlessness and thirst; desire for artificial warmth. Later great difficulty in breathing, with coldness, and cold sweating; fa-

tiguing, shaking cough, with expectoration of tough, sticky sputum; especially in feeble, old people without pronounced involvement of the lungs or bronchial tubes, but with great general prostration. Give as above.

Eupatorium Perf.—Soreness and pains as if in the bones; aching pain in the back as from a bruise; sneezing; soreness of the eyeballs; eyes water. Give as above.

Bryonia.—Bronchial catarrh; pleurisy, or pneumonia; fever, languor and pains all over. Give as above.

Rhus Tox.—Rheumatic pains without much fever, but with great restlessness. Give as above.

Cuprum Ars.—When there is pain and soreness in the region of the stomach; catarrhal diarrhoea; nausea and sometimes vomiting. Give as above.

Also during convalescence, three times a day, *Ferrum phos.* or *Arsenicum iod.* when there is great debility, and the strength returns slowly. Cod liver oil and malt is recommended in these cases. *Zincum phos.* when the nervous symptoms have been very marked, and there is neu. algia; sensitiveness of the spine; a headache that persists, and disinclination to use the head. *Strychnia phos.* Great debility; no appetite; unrefreshing sleep, with headache early in the day.

In mild cases of grip as well as in severe, the patient should go to bed. Grip is not a disease to be trifled with, and it is true economy to give up to it. Liquid diet should be given while there is fever, diarrhoea or any difficulty in digesting the food. Dry heat in the form of hot water bags, will often relieve pain in the back and elsewhere. Cold compresses to the head and eyes may be acceptable in the nervous form of the diseases.

Preventative measures include cold sponge baths with friction; good ventilation; the avoidance of draughts, overwork, or the free use of stimulants. A liberal nourishing diet is advisable.

Sore Throat.—*Acute Laryngitis.*

THE common sore throat is called laryngitis, and the acute form may become chronic. Draughts, getting wet or damp, over-exerting the voice, badly ventilated rooms, dust and noxious vapors, keeping on wet clothes are common causes of this affection which also may accompany influenza, measles, scarlet fever and other fever, and be excited by disturbances of the stomach and intestines. There may be a superficial inflammation causing chiefly hoarseness or even loss of voice, burning and tickling in the throat; slight cough; rawness, redness and more or less swelling; but the catarrhal form, which in children we call croup, may be very severe.

Aconite.—In the beginning, fever; full, rapid pulse; hot, dry skin; throat feels rough and dry; sometimes dry cough; much restlessness and anxiety. When the two last mentioned symptoms are wanting, Ferrum phos. may be even better. A dose every hour.

Belladonna.—Violent attack; high fever; dryness, redness and rawness of the throat especially in the right side; red face; throbbing of the arteries in the neck; inflammation and swelling of the tonsils; loss of voice; sleeplessness. Give as above.

Mercurius Bin.—Constant secretion of mucus in the throat; frequent difficult, painful and empty swallowings; some swellings of the glands under and back of the jaws; perspiration, especially at night. A dose every two or three hours.

Phosphorus.—Continued and great rawness, with dry cough and loss of voice. Give as above.

Apis.—Dryness of the mouth, and throat; puffy swelling of the mucous membrane; stinging, sticking pains; swallowing painful and almost impossible. This condition is really edema, or swelling of the larynx, and apis is the first remedy to be thought of. A dose every hour.

Phytolacca.—Dark red, dry, swollen mucous membrane; sometimes pustular spots; pain on swallowing; swelling and tenderness of the glands externally at the angle of the jaws; aching in the back and limbs. A dose every one to three hours.

Hydrastis.—Rawness and soreness of the throat; constant hawking of mucus, which drops into the throat from the back of the nose. Give as above.

A cold pack to the larynx, or the application of antiphlogistine often relieves the inflammation quickly. For direct treatment of the inflamed surface, use an oil spray of liquid vaseline one ounce, oil of sandal wood six drops, and oil of tar three drops, or a gargle of twenty drops of phytolacca tincture, or a teaspoonful of common salt, or half an ounce of listerine to a cupful of water as near the boiling point as can be borne. Bathe the throat often with cold water, and rub briskly with a coarse towel. Rest during the attack. Inhalations of steam medicated with iodine, bromine or eucalyptol are useful.

Chronic Sore Throat.—*Chronic Laryngitis.*

THE usual form of this affection is the catarrhal, following acute attacks or from long-continued use of the voice, inhaling dust, excessive smoking, mouth-breathing, or in connection with some other disease of the air passages such as nasal catarrh. There is hoarseness, especially on beginning to use the voice; a feeling of stiffness of the

throat; tickling, itching and an uneasy consciousness of the need of constant hemming and hawking; hoarseness may extend even to loss of voice. The removal of the cause is of the greatest importance. Singers, preachers and teachers are particularly liable to chronic laryngitis.

Causticum.—Hoarseness and loss of voice, always worse mornings; rawness and burning under the breast bone; paralysis of the vocal cords. This acts as a tonic to the muscles when used a few hours before singing or speaking.

Carbo Veg.—Long lasting hoarseness, worse every evening and from talking, with raw feeling in the throat; dry, tickling cough. A dose three times a day.

Phosphorus.—Hoarseness and loss of voice, worse in the evening; throat sensitive to touch, and so sore it causes pain to talk or cough; voice tires easily; rawness in larynx; tickling; hawking; dry, hacking cough. Give as above.

Argentum Met.—A valuable remedy in chronic laryngitis and hoarseness, especially in public singers or speakers; cough from laughing or talking, with easy expectoration of white, thick mucus like boiled starch. Give as above.

Hepar Sulph.—Persons of consumptive tendencies, very sensitive to cold air, who perspire easily and profusely; scanty, tenacious, muco-purulent expectoration. Give as above.

Kali Bich.—Hoarseness and accumulation of much tenacious mucus in the larynx in the morning; tickling in the larynx caused by coughing and clearing the throat; tickling extending into the mouth and ears. Give as above.

Manganum.—Obstinate chronic hoarseness, and roughness of the throat, especially in the morning, in the open air, and in debilitated or consumptive persons; better from smoking and after raising lumps of mucus, though after long hawking. Give as above.

Heated, badly ventilated rooms, crowds, smoking, the use of alcohol, spices, rich food must all be avoided. The voice must be rested. Change of air, especially to that of pine forests, and to a warm, dry equable climate is most desirable. Do not muffle up the throat; bathe it often with cold water, using friction. Cleansing the nasal passages and throat with borolyptol, listerine, glycothymoline, diluted with three or four parts of warm water is advised, or use ten grains of bicarbonate or baborate of soda to one ounce water.

Tonsilitis and Quinsy.

SIMPLE acute tonsilitis is a mild superficial inflammation due to cold or wet, or occurring during scarlatina, measles or some similar

disease, and characterized by swelling and redness of the tonsils to which tenacious mucus adheres, some pain and stiffness of the jaws on swallowing. In a few days, as a rule, recovery takes place. In quinsy, or tonsilar abscess, however, the deeper tissues are involved, and there is suppuration. There are chills; high fever; headache; backache; rapid, painful inflammation of the tonsils; swelling of the glands of the neck; pain and difficulty in swallowing, and finally the formation of an abscess which bursts, or may be lanced to evacuate the pus. Those most subject to quinsy have a rheumatic history. This disease may last from a few days to two weeks.

Belladonna.—The leading remedy, throat bright red, raw, and dry; swelling of the throat generally worse on the right side, painful to touch; flushed face; fever; headache in the forehead; throbbing of the arteries in the neck.

Mercurius Bin.—After belladonna when the tonsils are a dark red, hard and swollen; worse on the left side; the back of the mouth raw and burning; grayish white patches on the tonsils, painful swelling of the glands under the lower jaw. A dose every two hours.

Hepar Sulph.—Tonsils and glands of the neck much swollen; parts very sensitive to touch; sticking, splinter-like pains or throbbing. Give as above.

Baryta Carb.—Comparatively mild cases, and in those very sensitive to cold air; frequently recurring tonsilitis, with tendency to suppurate. A dose three times a day.

Kali Bich.—Copious secretion and discharge of ropy, tenacious, stringy mucus, with swelling of the tonsils, which are dark red; sharp, shooting pains. A dose every two hours.

Also *Phytolacca* when tonsils are swollen and bluish; throat dry, swallowing difficult, and with every attempt there are excruciating pains through both ears. *Silicea* when, after abscesses form and open, they refuse to heal, and there continues to be some discharge.

The sufferer should stay in a warm room, if not in bed; gargle the throat with a mild antiseptic, see section on "Sore Throat." As soon as an abscess forms, and by its soft, fluctuating feel it seems ready to be opened, it should be lanced, as this will save the patient much pain. The general health must be improved. Cod liver oil is recommended, and the malt extracts.

Diphtheria.

DIPHTHERIA is an acute, infectious, contagious, inoculable disease affecting chiefly the mucous membranes of the pharynx at the back of the mouth, and the upper air passages, and characterized by the formation of a fibrinous, grayish-white membrane, in the meshes of which are found the "Klebs-Löffler bacilli," or diphtheria germs. In

pseudo-diphtheria," or false diphtheria there is a membrane resembling that of true diphtheria, but it does not contain these germs, nor is the whole system so profoundly affected. False diphtheria is common in scarlet fever, and like the true, may also occur in erysipelas and measles. Membranous croup has been mistaken for diphtheria. No age is exempt, although children from one to seven years old are the most frequent sufferers.

Diphtheria may occur at any time of year, but cold damp weather favors epidemics, and its development is encouraged by bad drainage, open cesspools, defective plumbing, sewer gas, damp cellars, previous catarrhal affections of the nose and throat, and all unhygienic surroundings and manner of living. The diphtheria germ possesses great vitality, and will remain active on furniture, walls, clothing, books, toys and animals for many months, and even years. Direct contagion usually takes place from the patient's coughing, or from an attendant's breathing the air from the patient's mouth.

The period of incubation or hatching of the disease after exposure to it is from two to ten days, and may be longer, but not as a rule. As diphtheria poisons the blood, there are many constitutional as well as local symptoms; all will be mentioned in the order in which they generally appear: Languor; chilliness; moderate fever, and there may be some pain in the head, back and limbs, with loss of appetite; soreness, followed by inflammation and swelling of the throat; the formation of an exudate upon the tonsils as yellowish or grayish spots which run together, form patches, and may extend to the roof of the mouth, soft palate, upper part of the throat, and even involve the nose, and the lower air passages to the bronchial tubes and lungs. Unlike the secretion sometimes seen in tonsilitis, the exudation in diphtheria is firmly adherent to the lining beneath, and when the membrane is torn or thrown off it leaves a raw, bleeding surface, and tends to reform. With the appearance of the membrane the breath becomes very foul, and has a peculiar, sickish odor. Swallowing becomes painful and difficult, and fluids may return through the nose; the glands under the jaws swell; breathing is interfered with, there is great prostration; rapid, feeble pulse; high fever; vomiting; frequently a rash about the face, neck and chest, soon disappearing.

When the nose is affected, there is a yellowish, offensive, acrid discharge, obstruction of breathing, glandular swelling, and frequently nosebleed.

When the above symptoms are severe, the patient's strength may fail, and blueness of the skin show how much breathing is interfered with; the pulse grows weak; delirium or stupor may develop, and death follow in a short time.

Many cases, however, recover, and in these improvement generally sets in by the end of a week, characterized by the gradual softening and peeling of the membrane. Diphtheria may be complicated by

bronchitis, broncho-pneumonia, kidney disease or bleeding from the nose or throat. Paralysis, especially of the throat, is common during convalescence, and may occur during the disease; heart paralysis is the most dangerous form.

A dose of one of the following remedies may be given every hour:

Belladonna.—Mild cases only, before exudation takes place, and when there is high fever; dryness of the mouth; the tonsils or throat bright red; much pain on swallowing, especially liquids; congestion of the face, and headache.

Phytolacca.—Mild or moderately severe cases when the throat and back of mouth are covered with a dirty, dark, false membrane like wash leather; mucus is hawked up with difficulty and is stringy; great prostration, and severe pains in head, neck, back and limbs.

Nitric Acid.—Yellowish or grayish-white patches on the tonsils and nearby parts, extending to the mouth, lips, and nose; swallowing very difficult as if throat were constricted; splinter-like pains; glands under lower jaw swollen and painful; especially useful when the nose is involved, and there is a very bad smelling, excoriating discharge.

Mercurius Bin.—In cases not so bad but what they may be mistaken for a form of tonsilitis; tongue thickly coated a dirty yellow; glands in the neck swollen; tonsils and opening into the back of the nose covered with a somewhat soft and pasty membranous deposit; much mucus in throat, causing hawking.

Kali Bich.—When the deposit located as above and extending down the throat and up into the nose is thick, tenacious, and yellow, with tough, stringy mucous discharges; shooting pains from throat to ear on swallowing; red, raw, shining tongue, change from *Mercurius bin.* to *Kali bich.*

Mercurius Cyan.—Early and great prostration; involvement of the larynx and swelling of the glands; extensive white, yellow or gray exudate in mouth, throat and nose, very foul; very rapid, weak, intermittent pulse.

Baptisia.—*Stupefaction and drowsiness*; mind wandering, or low, muttering delirium; restlessness; face dusky red; throat dark red; tonsils and glands swollen; absence of pain.

Apis.—Great prostration from the beginning; throat looks puffy, glossy, red or purple; no thirst; burning, stinging pains; exudation dirty gray; urine scanty.

Arsenicum.—The infection of the whole system is very pronounced; the breath is putrid; prostration and restlessness great; feeble, quick pulse, dark membrane; throat badly swollen; thin, excoriating discharge from the nose; may be offensive diarrhœa.

Bromine.—Diphtheria of the larynx, with much constriction, and paroxysms of suffocation; hoarse, croupy cough, rattling in the larynx.

Cantharis.—Mucous membrane of the throat dark red and as if blistered; severe burning pains, with rawness; blood in the expectoration; cannot swallow, throat is so raw; urine scanty, may be bloody or contain albumen; passing it causes burning and smarting.

Gelsemium.—Paralysis of the throat, tongue or larynx; sometimes of the heart or muscles of the eyes, following diphtheria. A dose every three hours.

Also *Lachesis* in malignant diphtheria in bad cases where the whole system is poisoned; the throat a purplish livid color; pulse feeble and heart failure threatened; extreme prostration, patient drowsy; extremities cool. A dose every half hour. If no other remedies are available, five to fifteen drops of a chlorinated solution of lime may be added to one-half a glass of water, and a teaspoonful given every half hour to three or four hours, according to the urgency of the symptoms.

Every remedial measure should be immediately supplemented, if not preceded, by the administration of diphtheria antitoxin.* If in doubt whether the disease is diphtheria or tonsillitis, give an injection of 500 units for a child, 1,000 units for an adult. The average dose (Behring's Standard) in mild cases is 1,500 units, but in severe cases may be from 2,000 to 3,000 or more units. The dose varies with the duration and severity of the disease. Full instructions, which should be carefully followed out, come with all preparations, also as to the use of the syringe. After exposure to diphtheria a dose of 1,000 units should be given an adult, 300 units a child, and the protection thus acquired will last three or four weeks.

The throat may be swabbed with a fifteen volume solution of peroxide of hydrogen to dissolve the membrane and may be disinfected by use of potassium bichlorate, one grain to one ounce of water, used in a hand or steam-atomizer every two hours. When the nose is chiefly affected, use permanganate of potassium in the same proportion.

Alcohol as a gargle, 1 to 4 or even 1 to 2 is excellent. Steam may be obtained from a teakettle, if one has no steam atomizer, by using a rubber tube to convey it to the patient.

The patient should be isolated in an upper room, well ventilated, and from which all draperies, rugs, etc. have been removed. Sterilize all bedding and clothes by boiling; burn all rags and cloths used by the patient for the secretions; and have the patient expectorate into such cloths or into a cup containing carbolic acid solution, 1 to 20. No food should be allowed to remain in the room. The attendants should use an alcohol gargle, wash their hands in a carbolic solution

1 to 40, and wear no clothes which cannot be sterilized by boiling or baking.

The nourishment of the patient is of great importance. Milk and egg; peptonized milk; koumiss; eggs raw; egg nogg; egg and coffee; mutton or chicken broth, oyster broth; beef peptonoids; wine whey and trophonine are recommended. Nutritive enemata may become necessary, especially if there is paralysis of the throat. Give no solid food at any stage even of convalescence in the latter case. If the heart's action is very weak give stimulant, about half an ounce of wine for a dose. When the heart seems to be giving out entirely, give *Strychnine*, one-fiftieth of a grain every two or three hours, reducing the dose to one-hundredth of a grain as soon as the pulse grows stronger.

Whooping Cough.—*Pertussis*.

WHOOPING COUGH is a specific, contagious disease characterized by paroxysms of coughing, attended at their close by a long-drawn inspiration, the "whoop," which gives it its name. It is most common in children, but may attack adults and prove quite serious. The period of incubation is from seven to fourteen days, and the disease frequently appears as an epidemic in the winter and early spring.

Commencing as an ordinary cold or coryza with cough, running from the nose, redness and puffiness of the lower eyelids, and watering of the eyes, it progresses for ten days or more until the cough suddenly assumes a violent, spasmodic, paroxysmal form, with the characteristic whoop. The paroxysms of coughing may number anywhere from three or four to fifty or sixty in the twenty-four hours. During one of them the sufferer cannot get his breath, and suffocation seems imminent; the face is suffused, the eyes infected and bulging, and the tongue protrudes; sometimes there is nose-bleed or vomiting. The paroxysmal stage may last from two to six weeks, and the duration of the disease, as a whole, varies from six to twelve weeks. Between the attacks of coughing the patient seems well.

The contagious principle of this disease is probably in the expectoration, and possibly in the air from the lungs.

The most frequent complications are vomiting; bronchitis; broncho-pneumonia, and collapse of the lungs; pleurisy. There may be bleeding from the nose and convulsions.

Aconite.—First stage, with fever, hard, dry, wheezing cough; burning pains and tickling in the throat. A dose every two hours.

Belladonna.—In the beginning, sudden, violent paroxysms of coughing, without expectoration, *worse at night*; with sore throat, flushed face, eyes bloodshot, and sometimes nosebleed. Give as above.

Ipecac.—Violent, suffocating cough, the child becoming stiff, and *blue* in the face; gagging and vomiting of mucus. Give as above.

Drosera.—Spasmodic paroxysms of hoarse, loud cough, threatening suffocation; constriction of the chest; often vomiting of food or mucus. Give as above.

Cuprum.—Violent paroxysms of coughing, causing convulsions, stiffening of the body, and loss of breath, followed by vomiting and prostration. Give as above.

Corallium rubrum.—Short, quick, ringing cough; the paroxysms occurring in rapid succession, with extreme violence, making the face purple, and followed by vomiting of mucus and great prostration. Give as above.

Naphthalin, 1 x.—Long and continued paroxysms of coughing, with inability to inspire air, so the child is almost suffocated. Give as above.

Hyoscyamus.—Dry, spasmodic cough at night, aggravated by lying down, better from sitting up; face dark red, swollen and distorted; constriction of the throat; much mucus in the throat, and further down.

Tartar Emet.—Severe cases where the lungs are involved and there is much rattling of mucus in the chest; rapid pulse, nausea, vomiting, and drowsiness, mucus raised with difficulty, but expectoration gives relief, as does also vomiting.

Isolate the sufferer from others as much as possible; let him expectorate on pieces of old cotton cloth which should be burned; the same may be used in place of handkerchiefs, and then burned. Ventilation should be perfect; light weight woollen clothing worn next the skin; the diet should be ample but digestible and nourishing; exposure to cold and damp air must be avoided; nutritive rectal injections may be given if vomiting is excessive. Remedies which can be inhaled are mentioned on page 502. Mild cases should spend as much time as possible in the open air in fine weather. Change of climate is frequently beneficial.

Acute Bronchitis.

AN acute attack of inflammation of the bronchial tubes is generally the extension downward of an ordinary cold, which is followed by tightness and oppression in the chest; more or less fever; a raw, scraped feeling under the breast bone; a dry, hoarse, hard cough, followed later by expectoration of frothy, then thick, stringy mucus, which may be blood-streaked, but does not look like rusty nails as in pneumonia. After secretion has formed, the cough is not so hard, but there are crackling or rattling sounds in the tubes from the mucus there. A simple attack lasts a week or ten days, but bronchitis may become chronic, or be severe in old people or delicate young children.

Aconite.—Early in the attack; chilliness; high fever; hot, dry skin; short, hard tickling cough; great restlessness.

Ferrum Phos.—The same symptoms, but without restlessness or much fever.

Bryonia.—Heat, soreness, and pain behind the breast bone; dry, rough cough; labored breathing, and stitches in the chest; cough hurts the head and is worse in a warm room, and from moving about.

Phosphorus.—Should not be given before bryonia as it is seldom indicated until later, when there is tickling under the notch in the breast bone, and a very tight, constricted feeling in chest; cough better indoors, and worse on going from warm into the cold air.

Kali Bich.—Especially serviceable after *Aconite* in bronchitis following influenza, when there is free expectoration of thick, yellow, it may be ropy secretion, with hard, deep cough, and heavily coated tongue; loathing of food.

Ipecac.—Asthmatic breathing, much nausea and vomiting of mucus; rattling of mucus in the bronchial tubes; face livid while coughing; wheezing respiration.

Tartar Emet.—Profuse secretion of mucus in the bronchial tubes, great rattling of mucus with the cough, but *nothing is raised*; great oppression and suffocative breathing; nausea, vomiting, drowsiness; face bloated or livid. Both this remedy and *Ipecac* are valuable in treating bronchitis in children, and in the aged.

Belladonna.—Particularly useful for young children, spasmodic violent dry cough, with tickling in the throat; high fever.

A dose of the indicated remedy should be given every one or two hours. Keep the patient in a well ventilated room, temperature 70° to 75° F. The air should be kept moist by a steam atomizer, boiling water in a teakettle or other contrivance. Apply antiphlogistine to the throat and upper part of the chest, and cover with gauze and absorbent cotton, holding all in place by a bandage. Keep the bowels open by injections of warm water or glycerine. Give milk, gruels, barley water, wine whey, broths, egg nogg, and after fever subsides and convalescence has begun, a light diet including custards, wine jelly, ice cream, blanc mange, soft-boiled eggs, minced chicken, sweetbreads, steak, etc.

Persons showing a susceptibility to bronchitis should not keep their living rooms too warm; should have plenty of fresh air; bathe the throat and chest with cold salt water, with friction; and not muffle up the throat; breathe through the nose, and wear light weight woolen or linen mesh underclothes.

Chronic Bronchitis.

CHRONIC bronchitis may follow an acute attack and occurs more often in gouty, rheumatic, or elderly or middle-aged persons. It may follow other diseases. Cough and expectoration are the principal symptoms, although the latter is sometimes scanty. There may be a fetid expectoration, partly mucous, partly purulent, and this form of bronchitis is called bronchorrhea. Attacks of chronic bronchitis may recur every winter. There may or may not be any pain, but there is a sense of oppression, and shortness of breath. Asthma and heart disease may complicate chronic bronchitis.

Tartar Emet.—Especially for old people, with suffocative cough, and profuse secretion of mucus difficult to raise.

Stannum Iod.—Copious, easy expectoration of thick greenish or grayish semi-purulent mucus, which may be lumpy, tasting salty or sweetish; may be oppression in the chest and short breath.

Kali Bich.—Stringy expectoration; asthmatic breathing, worse about three or four o'clock in the morning; wheezy cough forcing the sufferer to sit up; hoarseness and burning pain low down in the throat; general weakness; eyelids puffy.

Sulphur.—Refractory chronic bronchitis in rheumatic, gouty, or scrofulous individuals, with oppressed breathing and putrid expectoration.

Phosphorus.—Dry, hacking cough with pain or tightness in the chest; tickling in the larynx; thin, delicate persons of a consumptive tendency.

Also *Hepar sulph.* Loose cough; expectoration partly mucous, partly purulent; worse at night and in the early morning hours. *Silicea.* Purulent expectoration with fever and profuse night sweats in consumptive persons. *Arsenicum.* Bronchitis with disease of the lungs or heart, or Bright's disease; debility; emaciation; restlessness and anxiety; asthmatic breathing, dropsy.

A dose of the indicated remedy three times a day. A nutritious, easily digested diet is essential, attention to personal hygiene, and remaining indoors in cold, damp and changeable weather. A warm, dry climate is desirable, especially where there are pine groves. Read the recommendations under acute bronchitis. Syrup of tar or wild cherry may prove a palliative when the cough is very annoying, or drop doses of chloroform on sugar. The inhalation of preparations of beechwood tar, creosote, or eucalyptol by means of a hot air inhaler purchasable at any drug store with directions for use, frequently gives considerable relief.

Asthma.—Bronchial Asthma.

TRUE asthma is probably of nervous origin and due to spasmodic

contractions of the bronchial muscles, although some writers think it caused by inflammation or swelling of the bronchial mucous membrane. Whatever the cause, it is a most distressing affection; chiefly characterized by sudden paroxysms of suffocative breathing generally at night, awakening the patient from sleep. The symptoms are well described in earlier pages of this book under "Asthma." Men are more frequently affected than women. Irritating vapors, fog, smoke, dust, mental shocks and deep emotions may excite an attack, and affections of the nasal passages. In families of a highly nervous make up the disease is often hereditary.

Arsenicum.—Paroxysms after midnight, obliging the sufferer to sit up at once and bend forward; painful and distressing restlessness; loud wheezing; dry, hard, spasmodic coughing followed by expectoration of frothy mucus streaked with blood; great prostration after the attack.

Ipecac.—Violent constriction of the throat and chest, with shortness of breath and *wheezing* respiration; the sufferer gasps for air at the open window; threatened suffocation; vomiting gives relief; face pale; asthma with bronchitis, and loose mucus in the tubes which cannot be raised.

Grindelia.—Five drop doses of the tincture three times a day, when the patient is subject to asthmatic attacks, and has a nervous fear of going to sleep on account of breath awakening him; the heart's action during an attack becomes weak and feeble, and breathing very difficult.

Nux Vom.—Asthma without bronchitis, but with irritable stomach; coated tongue; constipation; flatulence; for persons using much tea, coffee or alcohol.

Also *Aconite* during an attack excited by exposure to cold air, and in robust persons; full, bounding pulse; heat, restlessness, and perspiration. *Lobelia*. Nervous asthma; nausea; vomiting; vertigo-indigestion; great prostration. *Sambucus*. Asthma in children; quick, wheezing, suffocative attacks after midnight, with crying and profuse perspiration. The indicated remedy may be given every ten minutes during an attack, and three times a day during the intervals. *Persist in its use.*

Hygienic living is essential; no hearty meals at night; digestible food at all times and avoidance of over-eating; change of air is frequently beneficial; the air of the sufferer's room should be fresh and moist.

For relief during the attack get amyl nitrite perles containing two to five drops, and break one in a handkerchief, inhaling the vapor. A cup of very strong black coffee, or the dried leaves of stramonium smoked in a pipe, or burning blotting paper soaked in potassic nitrate and then dried, are about the most effective immediate measures

that can be taken. A whiff of chloroform or ether will often give relief. These are not curatives but palliatives, and the indicated remedy should be taken faithfully, and the general health improved.

Lung Fever.—*Pneumonia.*

PNEUMONIA is now known to be one of the infectious germ diseases, to which exposure to cold, unhygienic surroundings, worry and overwork, and alcoholism predispose one. Those suffering from chronic Bright's disease, diabetes, rheumatism, typhoid fever, gout, influenza, bronchitis or diphtheria, are particularly liable to pneumonia. Pneumonia may follow injuries, especially those of the chest. The three stages of this disease are congestion or inflammation, consolidation or hardening of the lung tissue, resolution or softening, and absorption or expectoration of the products of the disease. On earlier pages of this book there will be found an excellent description of pneumonia and its symptoms.

Veratrum Vir.—Severe and long lasting chill, rapid, full, strong pulse which is not lessened by pressing on the artery with the finger; great difficulty in breathing; rapidly rising and very high temperature, throbbing headache. Must be given in the beginning when all the symptoms point to intense congestion.

Aconite.—Symptoms similar to above but less severe, and accompanied with great anxiety and restlessness, also hot, dry skin; intense thirst; hard, dry, teasing cough. This remedy also should be given early.

Bryonia.—This remedy is especially adapted to the second stage when there is exudation in the lung tissue and hardening; severe, stitching or shooting, cutting pain between the ribs; painful cough, with scanty expectoration; patient holds his breath to avoid coughing, and feels more comfortable lying on the affected side.

Phosphorus.—Follows bryonia well when hardening of the lung tissue has taken place, dry cough, with bloody mucus or rust-colored expectoration; great oppression or tightness of the chest; difficult breathing as if there were a weight on the chest; moderate, vaguely localized pain.

Sulphur.—Slow softening and absorption, little or no expectoration; fever; oppressed breathing; feeling of heat in the chest; flushes of heat; the lungs are filled with the secretions and remain hard.

Rhus Tox.—So called "typhoid-pneumonia"; lips and tongue dry, brown and cracked; low muttering delirium, with restlessness; expectoration like prune juice; emaciation, weak pulse; may be pains like rheumatism, and putrid diarrhœa.

Tartar Emet.—Catarrhal pneumonia with great accumulation of mucus in the chest, loud rattling of mucus with great oppression, and very difficult breathing; loose, rattling cough, but patient cannot raise anything; face pale or livid.

A dose of the indicated remedy every one or two hours. The patient should be in a large, well-ventilated room, temperature about 72° F. The air may be kept moist as in bronchitis. Keep the patient lying down; every two hours give four to eight ounces of milk, egg and milk, egg in coffee, broths or gruels, or give ice cream, grape juice, meat juices, and plenty of water, lemonade if desired. Partial or complete sponge baths while the fever is high and there is much restlessness, are soothing.

Apply antiphlogistine to the chest, or if that is not available, put on a soft cotton jacket or absorbent cotton kept in place by a swathe and straps over the shoulders. Do not put on poultices. For pleuritic pains apply several thicknesses of flannel, sprinkle the outside one with water, and quickly run a hot flatiron over it until it steams; repeat often. Use a hot water bag. When the heart's action is weak give from one teaspoonful to half an ounce of brandy or whiskey, with water; repeating the dose as necessary. The free use of strong oxygen gas is strongly advocated in threatened heart failure, suffocative respiration, and face pale or livid. Also subcutaneous injections of strychnia, 1-100 grain every three or four hours, or 1-50 to 1-100 grain by mouth. The bowels should be kept open by daily injections; this is important.

Pleurisy.

WHEN the pleura, that is, the membrane covering the lungs and lining the chest, is wholly or partly inflamed there is a sharp, cutting pain, worse from coughing, taking a deep breath or moving. Pain is generally preceded by chilliness, fever and a hacking cough. If the inflammation goes on, fluid is secreted in the pleural cavity, and presses upon the lung; this watery fluid may become purulent. The disease may last a few days or many weeks, is excited by cold or wet, and caused by germs.

There is a form of pleurisy called "false pleurisy" or pleurodynia, which occurs between the ribs, and is merely neuralgic from inflammation of the nerves, or due to muscular rheumatism, or uterine disease.

Aconite.—To be of service must be given early; acute pleurisy, coming on with chill, followed by fever; thirst; quick, rapid pulse; skin hot and dry; rapid respiration; great nervous restlessness; stitching pains in the chest; hard, dry cough.

Bryonia.—Acute, stitching pains; worse from motion or breathing; short rapid respiration.

Cantharis.—Follows *bryonia* well when fluid has formed; heat, burning and stitches in the chest; difficult breathing; scanty urine.

Arsenicum.—Much fluid in the chest; breathing difficult, but little pain; much prostration and weakness; restlessness and anxiety.

Also *Sulphur* in chronic pleurisy when the fluid is slow to absorb. *Phosphorus* when pleurisy accompanies pneumonia or bronchitis. *Rhus tox.* Pleurisy after exposure to wet, or from straining or lifting, with muscular pains and great restlessness. A dose of the indicated remedy every one or two hours.

In false pleurisy *Bryonia* or *Rhus tox.* may be given when the pains are of a rheumatic character. *Cimicifuga*. Neuralgic pains in the left side, just below the breast, and especially when there is some uterine trouble. *Arnica*. Shooting pains, or pains as from a bruise when moving or coughing. May be given in true pleurisy, after an injury to the chest wall.

Give a dose of the indicated remedy every hour or two. The sufferer from pleurisy should have absolute rest in bed, and a liquid diet. Apply antiphlogistine or flannels wrung out in hot water and frequently changed. Do not use cold applications or poultices. Straps, three inches wide, of adhesive plaster, long enough to encircle the diseased side and to extend a short distance over the sound half of the body, may be applied just as the patient has fully let out a breath. Strapping limits motion, and so lessens pain.

In false pleurisy make hot applications or take a sitz-bath. Galvanism is helpful. Uterine derangements should receive appropriate treatment.

Pulmonary Tuberculosis.—*Consumption of the Lungs.*

THIS is the most frequent variety of consumption, and is caused by the organism known as the bacillus tuberculosis, first described in 1881 by the great scientist Koch. The disease may be acute or chronic, and is characterized by the formation of nodular bodies called tubercles, or by the production of areas of diseased tissue in the lungs. Wherever the disease develops, the tissues become cheesy or hard, and extension of the inflammation and ulceration may follow. Indians and negroes succumb more readily to consumption than white people, but the "great white scourge" is dreaded by the inhabitants of every part of the world. The death rate, however, is being lowered every year, chiefly, and this is a very important point, through people learning how to prevent the disease.

Consumption is an infectious disease transmitted most often by inhalation, that is, the germs entering the lungs in the air breathed in. These germs are in the expectoration of the person suffering from consumption, and every time he spits, unless into a receptacle that is afterwards burned or that contains a strong disinfectant, he may be giving consumption to someone, for the sputum dries, and

the germs enter the air as a fine dust to be breathed in at once by other people, or to be deposited on carpets, clothing, utensils, etc., and the contagion carried about, or conveyed back into the atmosphere. The germs are very tenacious of life, and will infect a person long after they are thrown off by a consumptive. This is why persons contract consumption living in a house where someone has had the disease. The germs may be taken into the system by eating meat from an infected animal, or using a consumptive's dishes, or clothes, or through the bacilli touching an abrasion on the skin or lips.

People very seldom inherit consumption, but often inherit the tendency, that is, constitutions which offer a fertile field for the development of the germs. Pulmonary consumption is more common between twenty and thirty, and in women than men, but no age is exempt. Many conditions favor its development, such as confining work in ill-ventilated rooms; lack of proper nourishment; living in damp houses or crowded tenements, under unhygienic conditions; bronchial affections; syphilis; alcoholism; wounds of the chest, or injuries to the lungs; many organic diseases, and occupations such as stone cutting, coal mining, etc.

In acute consumption, "galloping consumption," the onset of the disease may be sudden, with chill; pain in the side; fever; cough; bloody expectoration or bleeding; distressed breathing; much fever; night sweats; rapid emaciation; great prostration; and a semi-purulent expectoration in the later stages. The disease may terminate fatally in two to six weeks.

"Galloping consumption" may affect the bronchial tubes as well as the lungs, and follow whooping cough, measles or other infectious diseases in children. These cases may recover, chronic consumption result, or death ensue.

The early symptoms of chronic tuberculosis of the lungs are in general, slight fever; irritable pulse; emaciation; languor; capricious appetite or loathing of food; indigestion; sweats, and impoverished blood. There also develop cough; expectoration; pain in the chest; bronchial catarrh; bleeding from the lungs. What is discovered in all these cases by examination of the chest, is described elsewhere in this book. Diagnosis is best confirmed by the finding of the bacillus in the expectoration. Early diagnosis is of the greatest importance, that the disease may be treated during the curable stages.

Arsenicum.—In incipient consumption, especially when there is rapid loss of weight, and in "galloping consumption," with great prostration; rapid emaciation; hectic flush of the cheeks; fever; cough; interference with breathing. In the later stages *Arsenicum iod.*, when the expectoration is semi-purulent; the prostration great, and diarrhœa present.

Phosphorus.—Especially in consumption following pneumonia, and in tall, thin, “hollow chested” persons; young people growing rapidly; great debility; frequent attacks of bronchitis; dry cough; soreness in the larynx and trachea; long-continued hoarseness, and sometimes loss of voice; blood-streaked expectoration; tightness across the chest; hectic fever; night sweats; diarrhoea after meals.

Calcareo Carb.—In incipient consumption in fat, fair persons, or in rather phlegmatic, scrofulous children who cannot eat fat; young girls in whom the monthly flow is too frequent and profuse, or disappears; free perspiration; “acid dyspepsia”; nose-bleed; sensitiveness to cold or damp, slight effort causes fatigue. This remedy in these cases has loose, rattling cough, with yellow expectoration; persistent hoarseness; soreness in the chest; diarrhoea.

Iodide of Antimony, 2 x.—Three-grain doses, three times a day in consumption in scrofulous persons, with good appetite, but fast losing flesh; enlarged glands; persistent, short, hacking cough; profuse, partly purulent expectoration; morning sweats.

Nux Vom.—For digestive disturbances when prominent; morning headache; sour, or bitter taste; vomiting, or violent retching; neuralgic pains in stomach; constipation, with ineffectual urging.

Sanguinaria.—“Gallopings consumption,” especially when following pneumonia; hectic fever; circumscribed redness of cheeks; loose cough, but expectoration difficult; cough worse lying down, oppressed breathing; bleeding from the lungs.

Stannum Iod.—Especially when there is also consumption of the throat; profuse, sweetish tasting greenish or partly purulent expectoration; flushed face; emaciation; rattling of mucus, and soreness and weakness in the chest; debilitating sweats night and morning; reading or talking cause great fatigue.

Ferrum Phos.—Bleeding from the lungs with consumption, especially in young people; fugitive pains in the chest; difficult breathing and palpitation; thick, frothy expectoration streaked with blood; may be vomiting; sensation of fullness in the stomach. Consult the remedies given under “Bleeding from the Lungs.”

Also *Agaricine*, 1 x. one tablet at night, or repeat the dose in two hours, for profuse sweating, or in “gallopings consumption” with drenching sweats where *Agaricine* is not effective, give *Pilocarpine*, 2 x. *China*, 1 x, great debility following profuse sweats, diarrhoea, seminal emissions, leucorrhœa; weak voice; impoverished blood supply. Having selected the indicated remedy give it three times a day unless otherwise directed.

The main reliance in the treatment of consumption must be placed in a proper mode of life under favorable climatic conditions, meaning

an equable climate, with pure dry air, and a large proportion of sunny days. The patient should be out of doors practically all the time, sleeping on a piazza rather than in the house, even if there are many windows in the room and kept wide open. With rugs and hot water bags a patient can be kept comfortable in the coldest weather. Woollen underwear should be worn all the year round, but clothing so heavy as to cause perspiration should be avoided. Systematic deep breathing exercises must be performed several times a day. The amount of exercise must depend on the strength of the patient, and rest out of doors must be substituted for exercise when there is fever.

The diet must be simple, generous, and nutritious, cream, milk and eggs especially; meat juices; white of egg; peptonized or malted milk; koumiss; buttermilk. Cod liver oil is valuable if it can be taken. Malt liquors and the red wines may be beneficial. Nourishment should be given every two or three hours. Cold sponge baths may be taken daily; alcohol baths for the night sweats. Every consumptive should use a spit cup which can be burned, or which contains a strong disinfectant, as carbolic acid 1 to 20, and can be thoroughly cleansed. No handkerchief should be used, but pieces of cheesecloth or soft cotton to be afterwards burned. Children of consumptive tendencies should have nourishing simple food; be out of doors a great deal; go to bed early; take daily cold baths with friction; keep out of school if necessary and away from excitement. Delicate persons especially should avoid the use of alcohol, sexual excesses, overwork and worry. Catarrhal affections of the nose or throat should receive prompt attention.

Bleeding from the Lungs.

BLEEDING from the lungs may be caused by wounds rupturing the lung, congestion caused by heart disease, by ulcer, cancer, yellow fever, scurvy, violent paroxysms of coughing as in whooping cough, etc., but most commonly bleeding from the lungs is associated with consumption. The blood is nearly always bright red and frothy, may simply well up in the mouth or be preceded by a slight cough. The attacks are generally sudden, and may be preceded by a sense of warmth under the breast bone, sweetish taste in the mouth, headache, vertigo and palpitation of the heart. There is fever, and the sufferer is anxious and irritable.

Aconite.—Bright red blood; incessant, hacking cough; warmth in the chest; red face; great anxiety; full, bounding pulse.

Ipecac.—Sensation of bubbling in the chest, followed by copious bleeding, worse on the least movement, of bright red, frothy blood; oppressed breathing; faintness; nausea.

Hamamelis.—Blood dark, thin, coming into the mouth without effort, like a warm current.

Millefolium, 1 x.—Bleeding not relieved by aconite; profuse flow of thin, bright red blood, with oppression and palpitation, but not much cough.

Ferrum Phos.—Free, slight bleeding of bright red blood in delicate persons of a consumptive tendency or having consumption; dry, hacking cough with pressure on the chest.

A dose of the indicated remedy every fifteen minutes. Let the sufferer assume a semi-recumbent position, with head and shoulders elevated, and in a cool room which must be kept absolutely quiet. Do not give stimulants. In the absence of medicines put a small pinch of salt on the tongue. Small pieces of ice may be swallowed. If fainting occurs, do not attempt to revive the patient at once as temporary loss of consciousness is beneficial. Injections of normal salt solution are recommended after profuse hemorrhage, but require the skill of a physician. A hot water bag partly filled with hot water, temperature 120° F., (use a bath thermometer) should be applied to the back between the shoulders.

Baldness.—*Alopecia.*

PREMATURE baldness is often caused by dandruff. Thin hair may be hereditary and the little hairbulbs be only imperfectly developed. Other causes are old age, fevers, syphilis, violent emotion, parasitic diseases, continuous wearing of a hat, and using a comb to the exclusion of a brush. One form of baldness, alopecia areata, is thought by some authorities to be due to an affection of the nerves, others claim a parasite as the cause. In this form round or oval, limited patches become bare on the scalp, or more rarely in the beard, eyebrows or eyelashes. Recovery takes months and even years, and may never occur.

Phosphoric Acid when the hair turns gray or flaxen early, especially after grief; itching of the scalp, debility.

Arsenicum.—Hair falls out in circular patches; general health impaired; scalp sensitive to the slightest touch.

Also *Fluoric acid* when there is a syphilitic taint.

Graphites.—Bald spots on both sides of the head, with itching, moist eruptions.

Preparations containing iron and strychnia are serviceable when there is much debility, also cod liver oil when the body is not well nourished. Galvanism is helpful.

In premature baldness the daily application of the following lotion is recommended: Carbolic acid, one drachm; tincture of nux vom., four drachms; tincture of red cinchona, four drachms, and eight

ounces each of Eau de Cologne and castor oil well mixed and well shaken. In alopecia areata rub thoroughly into the bald spot with a brush at night the following: bichloride of mercury, two grains to half an ounce each of alcohol and water.

Ring-Worm on the Scalp.

THIS is a highly contagious disease occurring generally in childhood, communicable by the comb, brush or even towel used by the person affected. It is caused by a parasite and appears first as small, separate, round or irregularly shaped, reddened, scaly patches, turning to little vesicles in which pus or matter appears, dries up and scales off. Ringworm spreads rapidly; the hair becomes dead looking and brittle, breaks off unevenly; the scalp looks like goose-skin, while the patches often run together and may spread to the face.

Sepia is an excellent remedy, where the sufferer is in good general health. *Calcareo carbonica* in fair, fat, or scrofulous children, with perspiration of head and much itching of scalp. *Sulphur* in obstinate cases; many crusts form, with pus, itching and burning. *Tellurium* when the patches seem to come in clusters. A dose of the indicated remedy morning and night.

After softening the surface for two days with olive oil, then giving a soap shampoo, a few diseased hairs may be pulled out at a time with small, short, broad-bladed forceps, and an ointment rubbed in made of boracic acid, fifteen grains; sublimed sulphur, fifteen grains; and vaseline, one ounce. A good lotion is made by adding two to five grains of corrosive sublimate to one ounce of water or alcohol. It may be used instead of the ointment. Observe great cleanliness; build up the general health with milk, eggs, cod liver oil, cream, and good broths. No other person should use the comb, brush, towel, hat, or clothes of the sufferer. Persevere in treatment and be on the lookout for a relapse.

Ring-Worm of the Beard.—Barber's Itch.

Tinea Sycosis.

LIKE ring-worms of the scalp, this is a highly contagious disease, generally contracted in a barber's shop from infected soap, brushes or razor, or the unwashed fingers of the barber, but may be acquired from horses or cattle. The disease begins as reddish, rounded, branny patches from a pea to a small coin in size, and with a small-sized watery point in which matter forms. The nearby hairs become brittle and diseased. In bad cases hard, nodular patches become quite extensive; crusts form from the pustules, and the hair of the beard in the affected area can easily be pulled out.

The remedies and other treatment given under "Ring-worm of the Scalp" are equally indicated for ring-worm occurring elsewhere, but

when the beard is affected it should be kept shaved close to the skin. It must be borne in mind that having an individual cup, brush and razor at one's barber's is no guarantee of immunity unless his hands are thoroughly cleansed, a fresh towel used, and a separate strop.

Ring=Worm of the Body.—*Tinea Circinata*.

LIKE other forms of ring-worm, this also is contagious. The patches in the beginning are usually reddish, irregular and the size of a pea. In a few days they become circular, slightly reddened or raised on the edge. The extension of the patches rarely exceeds five or six inches. There is scaling, and when watery little points appear or pimples containing pus, crusts may form. The disease is more common in warm climates, and occurs most frequently on the face, neck, and back of the hands. There is slight itching and burning.

Give the indicated remedy as above. Scrub each patch with *spirits of green soap*, or olive oil or castile soap and water, and apply a two per cent. solution of formalin. Consult the general directions under 'Ring-worm of the Scalp.'

Blackheads.—*Acne*.

ACNE is an inflammatory affection of the sebaceous glands, and blackheads are one of its symptoms. Although the latter may appear on the chest, shoulders and back, they are most frequently seen on the face, causing great annoyance to the person afflicted. A description of them is given on page 155. A noted dermatologist says that eighty-three per cent. of all cases of acne are due to constipation or indigestion or to both. Other causes include uterine disease, cheap cosmetics, want of cleanliness, exposure to heat or cold winds, some varieties of soap, debility, rich or insufficient food, intemperance, sexual excesses, and changes in the system at puberty. Few cases are incurable, but the majority require months of treatment which should be internal and constitutional, as well as internal and local.

Antimonium Crud.—Small red pimples about the face, and on the right shoulder, stinging when touched; acne in drunkards with gastric derangements, severe thirst and white-coated tongue.

Calcareo Carb.—Acne on the face and neck; when due to sexual excesses; redness of the nose in consequence of difficult or scanty monthly flow; persons with scrofulous constitutions or who work much in water.

Hepar Sulph.—Painless pimples on the nape of the neck, forehead and chin; crusty pimples on the face in young people; swelling and suppuration of glands; skin yellow and unhealthy, every small injury suppurates.

Nux Vom.—Indigestion with constipation; small fetid ulcers in the mouth and throat. Pimples on the face in persons using wine, liquors, tobacco, patent medicines, or coffee in excess; sedentary habits.

Sepia.—Acne on the *chir*, worse during the monthly flow and pregnancy; pimples about the genitals, legs and in the creases of the joints; skin dirty-yellow and scurfy; ailments following vaccination or masturbation.

Silicea.—Obstinate cases in scrofulous persons; bad-smelling foot sweat; constipation, symptoms worse from wine or getting wet or cold.

Sulphur.—Blackheads and little black pits in the face; red, itching pimples on the nose, lips, around the chin, and on the forearm; tendency to boils; chronic cases.

Mercurius Sol.—Indolent, bluish-red pimples, especially the lower extremities, in syphilitic or scrofulous persons; suppurating pimples as above; glandular swellings.

Arsenicum.—Chronic cases where the skin is dry, rough and dirty-looking; the eruption mostly on the face and extremities; blackheads which itch and are painful.

A dose of the indicated remedy may be taken three times a day. Do not eat highly seasoned food, pickles, cake, pastry, nuts, cheese, fried foods, hot bread, sweets, or drink beer, spirits, cocoa, chocolate, or much coffee. Drink water freely, especially hot water in the morning before breakfast. Iron and cod liver oil are indicated in debilitated or scrofulous persons; fresh fruits and vegetables if they agree. Outdoor life, and frequent thorough bathing with friction. Sulphur and iodide of sulphur soaps, and good tar soaps are the best. Shampoo the affected parts every night—after a warm sponge bath of the entire body—with a flannel cloth, warm water and soap. If the skin is sluggish and the acne chronic, use tincture of green soap. Dry, and apply sulphur ointment, or when there is suppuration, an ointment of sulphur, five per cent., ichthyol, five per cent., and vaseline, one ounce. For other local applications consult the section on this subject on page 176.

Erysipelas.—*St. Anthony's Fire.*

ERYSIPELAS is an acute inflammatory disease of the skin and tissue beneath, caused by a germ and ushered in by debility, loss of appetite, headache, chilliness, coated tongue, nausea, increase of temperature (102 to 105 degrees), rapid pulse, and followed by continued high temperature and the speedy appearance of an inflamed patch generally on the face or head, but may occupy a portion of the body or an entire limb. The affected area is of a glossy red, bright, shiny,

with marked swelling, feels hot and firm and is sensitive to the touch; there is pain, burning and itching. Inflammation often extends rapidly; watery pimples or blisters may form, and finally pus. The disease should subside in a week unless complications occur involving the brain, lungs, heart, kidneys, etc., dropsy develops or an abscess forms. It is now believed that the erysipelas germ always obtains admission to the system through some abrasion of the surface, as through wounds, vaccination, skin diseases, etc. Whatever diminishes the vitality of the system predisposes one to the infection, also alcoholism and kidney diseases.

Apis.—Much swelling; skin puffy and pale; stinging, burning, prickling pains, or sore, bruised feeling; skin sensitive to slightest touch; erysipelas of the face and scalp, with puffiness of the eyelids; chronic erysipelas occurring about once so often.

Belladonna.—High fever; skin smooth, shining, bright; congestion of the head; sometimes delirium; severe headache; great thirst, dry tongue, parched lips; tendency of the inflammation to spread in streaks.

Rhus tox.—Watery blisters (vesicles) on the face or body; itching, and burning after scratching; dark bluish-redness of the affected part; bruised feeling in the back and limbs.

Arsenicum.—This remedy follows *Rhus tox.* well when the disease shifts from one place to another, and tends to attack internal organs; great restlessness and sinking of strength; skin bluish or black and blue; burning pains; quick, wiry pulse; grave cases.

Cantharis.—An excellent remedy when watery blisters form, and in them as well as elsewhere there are fine stinging, burning pains; much inflammation; urine burns and is scanty or can not be passed; patient very restless and uneasy.

Also *Aconite* in the beginning with high fever. *Arnica* when the inflamed surface is extremely tender, and painful on pressure; hot hard, shining, deep red and patient feels as if he could not bear the pain.

Painting the affected surface with collodion will in ordinary cases often relieve the pain, and limit extension of inflammation. Cold water dressings, renewed before they become warm, are valuable. Rye flour or powdered starch may be dusted on as a dry dressing. A cranberry poultice made by mashing the raw berries with cold water to form a paste is a good and simple application. An ointment of lanolin containing twenty-five per cent. of ichthyol, or a lotion with the same proportion of ichthyol, or a drachm of the hyposulphite of soda to one ounce of water can be recommended. Isolate the patient in a well-ventilated room; keep him in bed, and scrupulously clean; at regular intervals give highly nourishing food such as milk, malted milk, chicken and lamb broths, meat juices, panopepton, trophonine,

peptonized milk, plenty of water, and no alcoholic stimulants unless the pulse is weak, and the patient collapsed.

The injection of about 20 c. c. of anti-streptococci serum every eight hours is one of the most modern methods of treatment.

Prickly Heat.

IN hot weather the sweat glands of the skin often become congested or even inflamed from excessive stimulation by heat. There is an eruption of tiny pimples of a bright red color, sometimes with watery vesicles interspersed, and tingling and prickly sensations, annoying and, at times, unbearable. The upper part of the forehead, and the parts of the body covered by the clothes are most subject to these attacks.

Bryonia.—Prickly heat from getting overheated either by exercise, working before a furnace, ironing, etc.; red rash over the whole body, profuse sweating on slight exertion.

Arsenicum.—Prickly heat, with watery vesicles, burning, itching and crawling sensations, especially at night; general debility, indigestion.

Ledum.—Red, pimply eruptions, especially on the face and forehead; with intense itching, worse from scratching and from the heat of the bed; prickly heat, with sensation as if bitten by insects.

Urtica Urens —Extremely distressing burning heat of the face, arms, shoulders and chest; with crawling sensations, numbness, and violent itching.

Also *Sulphur* for scrofulous persons, and those subject to skin eruptions, especially with watery blisters or vesicles, with much itching, burning and tingling, worse after rubbing and from warmth or bathing. *Apis.*—Stinging, smarting, prickling, burning or itching of the skin, nettle-like eruption. A dose of the indicated remedy every two hours.

A bran or oatmeal bath with a little carbolic acid solution in it, then mopping the skin perfectly dry without rubbing, and dusting on subnitrate of bismuth and starch powder, or lycopodium powder is the best local treatment. Keep babies and young children out of the sun during the warmest hours of the day; do not use ice water; always purchase the purest soaps, and rinse the skin thoroughly after using. Hind's Honey and Almond Cream is a harmless and soothing lotion.

Malignant Pustule.—Anthrax.

Wool-Sorter's Disease.

MEN who work among cattle or sheep, dress hides, etc., are liable to contract this disease by inoculation or inhalation of the germ, or by eating diseased meat. Abrasions on the skin become infected

when handling diseased hides, rags, wool or hair, or instruments; flies or mosquitoes may carry the infection. The disease develops in from one to five days after exposure.

The malignant pustule caused by inoculation is most apt to appear on the face, hands, or arms, as a small pimple with itching, smarting and burning pain as from the bite of an insect. Watery or bloody fluid forms in the pimple which is surrounded by little pimples, and there is swelling, also inflammation of the nearby glands. In severe cases there are marked constitutional symptoms, fever, prostration, sweat, enlarged liver, and spleen, dry tongue, and may be delirium-stupor, collapse and death in from four to eight days.

There is a form called malignant edema, without pustules, but where the swelling is very extensive. In the internal form caused by eating infected meat, there are all the symptoms of acute poisoning, chill, prostration, headache, pain in the intestines, nausea, vomiting, and frequently death. Wool-sorter's or rag-picker's disease is characterized by chill, then fever with high temperature, labored respiration, bronchitis, pains in the back and legs, and great nervous depression.

The indications for internal remedies are few; but internal medication is of importance, and should be persisted in.

Arsenicum.—Painful and malignant pustule, with great prostration and restlessness; constant thirst, but drinking little at a time; depression of the nervous system, and when stomach symptoms are prominent with pain, nausea, vomiting and retching; mouth dry; tongue red; small weak pulse. Give at once in the beginning of the trouble, a dose every hour or two.

Lachesis.—Bluish color of the pimple, with radiating red streaks, swelling about the pustule.

Anthraxinum.—Symptoms resembling those calling for *Arsenicum*, but even more intense, and apparently blood poisoning of the entire system.

Rhus Tox.—Great restlessness; violent pains somewhat better while the patient is moving about; burning itching around the pustule; vertigo; aching pains in the limbs, may be mucous diarrhœa.

Secale.—Coldness of the skin, with clammy perspiration; pimple bluish, not much inflammation but tendency to sloughing; pale, anxious countenance, eyes sunken, and blue circles about them.

A dose of the indicated remedy every hour. When there are pustules they should be cut out, and pure carbolic or nitric acid applied to the raw surface, or the electro-cautery may be used. If swelling predominates incisions may be made, or a few drops of carbolic acid, 1 to 10, injected at the base of the swelling. Compresses saturated with bichloride of mercury solution, 1 to 1,000 may be applied. Stimulants are necessary when there is great prostration and feeble action of the heart; system must be well nourished.

Itching of the Skin.—*Pruritus*.

PRURITUS is always secondary to some disturbance of the nervous system, occurs at all ages and in both sexes, but its aggravated forms are peculiar to middle life and advanced years. It frequently is a symptom in disturbances of the stomach, liver and intestines, in derangements of the urinary system and genital organs, and may be caused by worms in the rectum, piles, a too stimulating diet, sedentary habits or perversion of the sexual functions. Pruritus is common in gouty and rheumatic persons. Itching of the anus is one of the most distressing forms.

Arsenicum.—Crawling, burning sensations; intolerable itching of the genitals; itching of the anus, with burning, or an eruption emitting a small drop of watery fluid; chronic cases.

Mercurius Viv.—Itching as from fleas; may be pleasant, voluptuous itching, or burning or tickling; itching of the genitals; of the anus with moisture, burning and smarting, worse at night.

Pulsatilla.—Pruritus in women during monthly flow or pregnancy; itching as from ants.

Sulphur.—Severe itching and burning of the anus, keeping the patient awake at night.

Rhus Tox.—Itching, redness, swelling and tingling of the parts.

Nux Vom.—Itching after stimulating food and alcohol, with indigestion; sexual organs especially.

A dose of the indicated remedy every four hours. Regulate all the habits especially the sexual life, and exercise and diet. Scratching is most harmful, and temporary relief may often be obtained by pressing firmly on the surface or by gently drawing over it an oiled or wet cloth. When the skin is free from abrasions alternate hot and cold douching, or even the cold salt water sponge will improve its tone. A simple application is made by adding one ounce each of hyposulphite of soda and glycerine to three ounces of water. Lotions containing carbolic acid are probably the most effective, and may be obtained at any drug store. The long continued application of even a weak solution of carbolic acid may cause gangrene of the skin. Always use a dusting powder after drying the skin. A saturated solution of boric acid, or the compound tincture of benzoin may be painted on the genitals. The general health should be improved; organic diseases receive appropriate treatment, and the garment worn next the skin should not be of wool.

Cancer of the Skin.—*Epithelioma*.

EPITHELIOMA is distinctly the product of long continued irritation, generally changing some primary benign condition to one of malignancy. Thus a wart, pimple, hardened gland, or a circumscribed

excoriation as of the lip from a pipe or cigar may after some years become the starting point of a cancer. Nearly three-fourths of all cancers of the skin occur on some part of the head or face, most frequently after forty years of age, and more often in men than in women.

When occurring without any previously existing affection, an epithelioma is first noticeable in the form of a few greasy scales, a papery crust covering three or four shallow ulcers, or a hard bluish nodule varying in size. It may be superficial or extend quite deeply into the tissues; occur on the genitals, extremities, on the lip or any part of the face and head; may be indolent or of rapid growth; curable or incurable, but usually the outlook is serious.

Remedies that may be given internally are *Thuja* for warty growths with the symptoms given under "Warts"; *Arsenicum* in undoubted malignancy, with itching and burning pains, ulceration, and depression of the whole system. *Nitric acid*. Bluish-red, nodulated, roundish ulcer; bleeding easily; unbearable burning pain worse from eating and drinking; cancer of the mucous membrane especially. *Petroleum*. Nodules on wrists, hands, arms, feet and legs; pimples in the folds of the genitals. *Conium* or *Causticum* recommended to prevent horny excrescences assuming a cancerous character. A dose of the remedy selected twice a day.

Local treatment should be promptly instituted, so promptly, indeed, that warts, fissures, erosions, or other abnormal conditions of the skin should never be neglected or allowed to persist, with the always present possibility that degenerative changes may take place. Internal remedies will improve the general condition, and supplement other measures, but the x-rays or the knife should be resorted to as early as possible. The results of treatment of superficial forms of cancer, especially by the x-rays, are very encouraging, and in very large cities leading surgeons and specialists in skin diseases have the necessary apparatus. Do not try "cancer cures," but go to a qualified practitioner, whether allopath or homeopath. Treatment by the x-rays is painless, and the skin less liable to be badly scarred than when the knife is used. Caustics are frequently used to destroy cancer of the skin, but we cannot recommend their use by the laity. Growths are also cauterized by means of electricity.

Whitlow.—Felon.—Paronychia.

A "run round" of whatever degree is an exceedingly painful affection. It affects the end of a finger or thumb causing inflammation and swelling, and excruciating pain, especially when the covering of the bone is involved. Pus may form, the nail be affected and come off. One run round may be followed by others.

Hepar Sulph.—Give early before suppuration occurs, when there is redness, tenderness, and more or less swelling; or after suppuration is established. A dose every two hours.

Silicea.—A most valuable remedy; especially in bad cases with the bone involved; burning, tearing, sticking pains better from warm applications, worse from cold; suppuration; slow-healing. A dose every three hours.

Fluoric Acid.—Bone felons, with offensive discharge in persons subject to skin eruptions; pain and other symptoms better from cold applications, worse from warm. Give as above.

A felon, accompanied by the characteristic hammering, throbbing pains, may sometimes be aborted by the following simple treatment: Pour one-half pint of boiling water on a handful of fresh wood ashes, making a strong lye. Thrust the finger into the lye which must be as hot as can be borne. After a few minutes remove the finger, and apply compress wet with the hot lye. Repeat the treatment in three or four hours, if necessary. An excellent application relieving inflammation and swelling is antiphlogistine. Plaster it on, cover with absorbent cotton, and renew daily. Free incision should be made with a sterilized lancet as soon as pus forms, and the wound cleansed with an antiseptic such as peroxide of hydrogen or listerine. It is well to keep the hand in a sling; the hand should be higher than the elbow.

Warts. *Verrucæ.*

COMMON warts consist of a pin-head to bean-sized circumscribed elevation of the skin due to excessive growth of little end expansions of vessels and nerves in the skin. The precise cause of these warts is unknown, but in many instances they seem to be contagious. There are other kinds of warts, those in old people, may be due to changes in nutrition of the skin, or may precede the development of cancer of the skin. Venereal warts are due to specific infection, and warts in tuberculosis to the bacillus of that disease. Fig warts are excrescences shaped like a fig. The common warts here referred to may often be cured by the use of the indicated remedy; this will not interfere with local treatment.

Thuja.—Wart-shaped excrescences here and there, especially on the hands and genitals, but may appear about the head and ears; warts after gonorrhea; come in groups or crops; seed warts or fig warts that are moist or suppurate.

Nitric Acid.—Warts especially on the arms, head, neck and nose; moist, bleeding, inflamed; cauliflower warts; may be hard and horny or large and fleshy; burning, pricking or painful; fig warts that split or crack.

Antimonium Crud.—Flat, horny warts in fair, fleshy, children.

Causticum.—Small, horny or hard old warts, may occur all over the body; may be large and fleshy, painful, stinging, inflamed and moist; warts on the nose, face or hands.

A dose of the indicated remedy three times a day. When taken internally, thuja may be used as a lotion also, twenty drops of the tincture to a cupful of water. Warts may be removed by the knife, electro-cautery, nitrate of silver, pure nitric acid or other caustic. Venereal warts should be kept clean, washed with a solution of peroxide of hydrogen, dried thoroughly and kept dusted with calomel

Inflammation of the Glands of the Groin or Armpits.

WHILE inflammation of these glands is most common in persons of a scrofulous constitution, swelling, soreness and even suppuration may be due to other causes. Glandular enlargement may accompany the eruption in measles, or be present in hereditary syphilis, typhus fever, scarlet fever, tuberculosis, during the change of life, and in disease of the blood with impoverishment of the blood supply, great disturbance of nutrition, and more or less enlargement of the spleen. Sometimes injuries to the upper extremities cause inflammation of the glands under the arms, and to the lower extremities of the glands in the groin. Consult the remedies given under "Scrofula."

Belladonna.—Enlargement and hardening with heat and redness of the glands under the arm, especially in women at the change of life; also, during scarlet fever.

Alumina.—Swelling of the glands or a gland in the groin in gonorrhea, with yellowish discharges from the male organ, and itching and burning along the urinary passage.

Carbo Animalis.—Enlargement of the glands of the groin and armpits, feel hard like a stone, especially in syphilitics.

Conium.—Stony hardness of the glands, with little or no pain, after a contusion or bruise, or in enlargement and hardness of the glands in persons with scrofula or cancer in the family.

Also *Hepar sulph.*, *Calcareo carb.*, *Iodine*, *Sulphur*, etc., as given under "Scrofula," and *Silicea* when glands have broken down and discharged matter, yet feel hard and are slow to heal. *Mercurius*. Enlarged glands in syphilitic or scrofulous persons, with or without suppuration. *Phytolacca*. Inflammation and swelling of the glands, with rheumatic pains; may be ulceration. A dose of the indicated remedy three times a day.

When pus forms in an enlarged gland it should be evacuated, and the wound cleansed with an antiseptic wash such as listerine and water, 1 to 4, or corrosive sublimate 1 to 1,000. Gauze wet with tincture of calendula, 20 drops to a cupful of water, may be used as a dressing, and covered with oiled silk and a bandage. When the glands are merely sore and inflamed, antiphlogistine makes a most excellent application. In syphilitic cases a mercurial ointment may be applied.

Scrofula.

SCIENCE tells us that scrofula is a form of tuberculosis caused by the same variety of rod-shaped cell called a bacillus. The form of scrofula to which this section refers is that manifested by swelling of the glands under the jaws, in the neck, groin, and under the arms. For a detailed description see page 529. Infection may take place through the tonsils, the lining membrane of the nasal passages, or through abrasions of the skin. It is most often poorly nourished children and adults who are affected, especially those living under unhygienic conditions. Sometimes the glandular trouble accompanies consumption of the lungs.

In children of a scrofulous constitution humors and sores on the skin are common, healing is often slow, and recurrence frequent. Remedies used homeopathically are of great value, because correcting the constitutional condition which favors the development of the disease locally.

Calcarea Carb.—Enlarged glands in plump, fair-skinned individuals; tendency to grow fat; take cold easily, feet damp and cold; perspire profusely.

Baryta Carb.—Painful, hard swelling of the glands under the jaw or in the back of the neck, especially after influenza; in children subject to inflammation and swelling of the tonsils, and who develop slowly mentally.

Hepar Sulph.—Enlarged glands which tend to suppurate, and break down; skin unhealthy, even slight injuries are slow to heal, and matter forms.

Mercurius Viv.—Scrofulous somewhat emaciated individuals, especially children, with large heads; limbs cold and damp; oily, offensive perspiration of the head; enlarged glands suppurate and discharge pus.

Silicea.—A valuable constitutional remedy when the bones as well as the glands often seem to be affected; sour or offensive perspiration at night; sensitiveness to cold air; large head and distended abdomen; glands suppurate, and a thin discharge persists.

Also *Iodine* when glands are enlarged and hard, especially in dark-haired, sallow, thin persons. *Sulphur* as a constitutional remedy in dark-complexioned individuals, with dry skin subject to eruptions, sores, cracks, itching and burning; slight injuries are slow to heal. A dose of the indicated remedy may be given three times a day.

Plenty of fresh air; sunshine; nourishing, digestible food, and hygienic surroundings are indispensable. Cod liver oil is both a food and a medicine, and may be given by mouth and also rubbed into the skin daily after bathing. Change of air is frequently beneficial.

Children of a scrofulous constitution should not be allowed to eat sweets, fried food, pastry, cake, pork, griddle cakes, or to spend much time indoors.

Varicose Veins.

SWELLING of the veins near the surface, especially of the legs; with relaxation of the walls, and a more or less permanent distention with the accumulated blood is familiar to all. Tight garters, tight lacing, constant standing, pregnancy, hereditary tendency, and impaired circulation from debility or other diseases are common causes. A vein may burst causing severe bleeding, or ulceration may result. Medical treatment is valuable as a preventive or curative measure, but occasionally must be supplemented by surgical interference.

Hamamelis.—Especially in acute cases; veins inflamed, painful or dilated, and soreness is conspicuous.

Pulsatilla.—Varicose veins occurring during pregnancy; soreness and stinging pains.

Fluoric Acid.—This remedy is recommended by several good authorities as producing shrinkage in the size of the affected veins.

When there is acute inflammation of a vein, *Arnica* is suitable, and later if the veins are blue and livid, with threatened ulceration and burning pains, *Carbo veg.* should be taken. A dose of the indicated remedy morning and night.

Bathe the affected part with *Hamamelis*, and at night apply cloths wet with the same and covered with oiled silk. For the leg an elastic stocking will be found of great service, or bandaging with a rubber or woolen bandage. Keep the limb elevated. If the skin is broken, apply hamamelis cerate; if hemorrhage occurs, the sufferer should lie down and the affected part be elevated, while bleeding is controlled by pressure and cold applications.

Boil.—*Furunculus*.

THIS is a small, circumscribed, painful tumor, which begins in the form of a pimple and increases in size until as large sometimes as a walnut. A boil differs from a simple abscess in having a core of dead tissue, around which the inflammation develops. Modern science is of the opinion that this disease is due to the invasion of a micro-organism, which, entering some tiny gland in the skin sets up changes causing death of nearby tissue, and irritation with inflammation. One boil is frequently followed by another in persons in ill health from anxiety, overwork, unwholesome food, lack of exercise, etc. A boil may be very painful before pus forms, and the tumor softens and breaks down, discharging matter and the hard core.

Belladonna.—If the boil is hard, red and painful, a dose of *Bella-*

donna every hour will often relieve pain and prevent the formation of matter.

Hepar sulph.—Pulsating pain indicating suppuration. The boil will come more quickly to a head through the use of this remedy every two hours.

Arnica.—An excellent remedy to be taken three times a day for a week or two after having boils, to prevent their recurrence.

Sulphur as a preventive is sometimes more effective, especially in persons subject to skin eruptions.

Silicea.—Boils that come in crops are slow to heal and have a thin, watering, bad-smelling discharge or thick pus; also, for the hard spots left by boils.

In its earliest stage a boil can be aborted by introducing a pointed stick of nitrate of silver, and working it thoroughly round; this is, of course, very painful. The galvano-cautery is also used. The injection of two or more drops of carbolic acid (95 %) will frequently abort a boil. Never use a knife on a boil until it is thoroughly ripe. In the very beginning spread antiphlogistine over the affected area only, and cover with gauze or cheese cloth, and absorbent cotton. This will often prevent suppuration, if available, and is superior to poulticing. When a boil is opened by knife, all pus and dead matter should be removed, peroxide of hydrogen, or corrosive sublimate 1 to 1000, used as a wash, and cheese cloth wet with one of these antiseptics applied, or with calendula tincture twenty drops to a cupful of water. Do not poultice after opening a ripe boil, or the formation of more boils will be encouraged.

Carbuncle.—*Anthrax.*

A GOOD description of carbuncle will be found on page 588. A carbuncle is a malignant boil, much harder to heal than a simple boil, and seems to affect the whole system. Spring and summer are the seasons of the year when boils or carbuncles are most likely to develop, and in debilitated people, or persons who make a sudden change in their diet or habits, undergo prolonged fatigue, or those having kidney disease or recovering from long continued illness.

Arsenicum.—Large, painful, malignant carbuncles; cutting, burning pains, worse after midnight, relieved by heat; great prostration and restlessness, much thirst for small quantities of water at a time. A dose every two hours.

Belladonna.—Smooth, bright-red swelling, skin drawn tight; throbbing pain; patient drowsy but cannot sleep; head and face congested; some fever. Give as above.

Bryonia.—Especially recommended to hasten suppuration. Give as above.

Crotalus.—The affected part is bluish, and often surrounded by many small pimples; the skin is very sensitive, with burning, throbbing pains. Carbuncles which slough; are very offensive. A dose every four hours.

Silicea.—To check excessive suppuration, promote healing, lessen the hardness of surrounding tissue, and improve the constitutional condition. A dose three times a day.

Do not poultice a carbuncle. Inject two or three drops of carbolic acid (95%) into each of its openings or in several places, and apply ice bags. If the patient is not suffering from kidney disease, and the carbuncle increases in size, spray the surface with ethyl chloride or inject a few drops of cocaine (4%) to produce insensibility of the part, then open the carbuncle freely with a sharp knife that has been sterilized in boiling water. The incisions should cross each other. All pus and diseased tissue should be scraped out; the wound treated as recommended for a boil. Improve the general condition by a diet of milk, eggs, cod liver oil, beef juice, broths, fresh fruits and vegetables, out-door life, frequent bathing, etc. Always look for the cause of boils or carbuncles, and remove it.

Abscess.

ACUTE abscess may be said in general to be a localized inflammatory condition, characterized by chills, increase of pulse and temperature, redness, heat, pain, swelling, the formation of pus with a tendency to point and discharge matter spontaneously unless prevented by dense tissue structures. A chronic abscess rarely exhibits these symptoms, but forms an indistinct tumor, sometimes difficult to diagnose and often requiring surgical treatment. Abscesses may result from falls; blows; wounds where dirt, nails, slivers of wood, etc., enter or remain in the injured part. They sometimes are caused by diseased bone; they may accompany other diseases, or depend upon constitutional conditions.

Belladonna.—Surface bright red, swollen and tender to the touch; the swelling forms suddenly and develops rapidly. A dose every two hours.

Mercurius viv.—After pus has formed, and to bring abscess to a head; throbbing, stinging pains. Do not give it before pus forms; it follows *Belladonna* well. Give as above.

Silicea.—Continued suppuration after abscess has broken or been lanced; slow healing; offensive discharge. Chronic abscess or abscess of the bone. A dose every four hours.

Calcareo carb.—A good constitutional remedy for those of a scrofulous constitution, or ill nourished; fair complexion; tendency to grow fat; small wounds suppurate; skin eruptions occur frequently; perspire easily.

If any foreign body like a sliver of wood is present, remove it. Spread antiphlogistine one-eighth of an inch thick over the abscess. An abscess should be opened with a sharp, sterilized knife as soon as it points, and the cavity thoroughly washed out with listerine and water, 1 to 4, or carbolic acid and water 1 to 40, or peroxide of hydrogen. Drainage tubes of soft rubber perforated with small holes, are put in the cavity to allow pus to escape. Gauze wet with an antiseptic, or with calendula tincture (see Boils) makes a good dressing.

Iodoform, one part to nine parts glycerine, makes a good emulsion to apply to the cavity of a chronic abscess, after washing with an antiseptic solution. This stimulates healing. Persons subject to abscesses should eat no rich or spiced foods, use no stimulants and avoid all excitement of the passions.

Ulcers.

PEOPLE of low vitality, of bad habits or inheriting some constitutional defect are most liable to ulcers. There are many different kinds, *e. g.*, the irritable ulcer, red, inflamed, with painful ragged edge; the varicose ulcer, with much distension of the nearby veins, and swelling; indolent ulcer, slow to heal; scrofulous and syphilitic ulcers. A bruise, burn or boil may excite the formation of an ulcer. The ulcers occurring within the body will not be referred to here.

Arsenicum.—Intense burning, shooting pains; bloody or thin, acid discharge; superficial, raw looking ulcers that bleed readily.

Kali Bich.—Deep ulcers on the leg, with hard bases and overhanging edges.

Mercurius Sol.—Syphilitic ulcers, superficial, flat, and enlarging rapidly, with thin, corroding, offensive discharge of watery pus.

Nitric Acid.—Ulcers irregular in outline, tending to dip downward deeply; often show profuse granulations; bleed at the slightest touch, sticking, burning pains; excellent for syphilitic ulcers after taking too much *Mercury*.

Carbo Veg.—Varicose ulcers with burning pains; skin mottled and small blood-vessels enlarged; in indolent ulcers surrounded by spots like black and blue spots, with thin, corrosive, burning discharge, and hard borders; in cancerous ulcers.

Lachesis.—Skin about ulcer pimply, mottled, blistered, dark-blue or purple; ulcers extend superficially, threatens to involve veins; discharge scanty; the skin may become cold and feel dead; disagreeable odor like a grave.

Sulphur.—Especially useful for chronic ulcers in scrofulous people; excessive itching, with burning pains; thick yellow, or thin offensive discharge. A dose three times a day.

The symptoms given under "Abscess," page 743, for *Calcaria carb* should be read.

Simple ulcers most frequently occur on the arm or leg; when located keep the limb at rest and elevated. Keep the ulcer clean and apply gauze or soft cotton cloth wet with calendula tincture, twenty drops to a cupful of water, cover with oiled silk and lightly bandage. A chronic callous or indolent ulcer should be well scraped and stimulated by the application of nitrate of silver; a varicose ulcer requires support of the veins by a rubber bandage or elastic stocking. Sloughs formed by dead tissue must be removed, and the surface of the ulcer washed with an antiseptic, see treatment of "Abscess," page 580. Pure carbolic acid or nitrate of silver may be applied to an irritable ulcer. All hygienic rules must be observed, and only digestible food eaten.

Chilblains.

THIS common affection affects the fingers and toes, causing reddish or bluish swelling, soreness or inflammation; intense burning and itching. The skin may break down, and a suppurating sore result. Chilblains are most common in the winter time, and in those with lessened vitality or of a scrofulous constitution.

Agaricus.—Itching, burning, redness of the toes or fingers with swelling and great soreness. One of the most useful remedies in the author's experience. Should be taken internally and applied externally also. A dose every three hours.

Arnica.—Hard, shining, unbroken skin; pain and itching of the parts. Give as above.

Arsenicum.—Burning, stinging pains, with ulceration; lack of vitality; feet easily chilled; heels as well as toes affected. Give as above.

Belladonna.—Much inflammation; skin bright-red; throbbing pains; swelling. A dose every two hours.

Sulphur.—Chronic cases; much itching, worse from warmth; the affected part a bluish red. A dose three times a day.

Agaricus tincture may be applied to the affected parts; note the symptoms indicating the remedy. Kerosene gives relief in many cases, also olive oil and turpentine, equal parts. When the skin shows a tendency to blister, apply tincture of cantharis, one part to six parts of soap-liniment.

Remedies must be supplemented by measures to improve the patient's condition both general and local. Take outdoor exercise regularly; wear easy boots; bathe the feet daily with cold salt water, applying brisk friction afterward, snow may be used in place of water; wear woolen or other heavy stockings, no tight garters, and keep away from the fire; eat simple, nourishing, unstimulating food; no alcoholic beverages.

Liver Spots.—*Maculæ*.

MACULÆ exhibit a wide variation of color from a rosy pink to a chocolate brown or black, are usually without depression or elevation, occur in patches on the face or elsewhere, and although commonly called liver spots, may be due to any cause resulting in congestion of the arteries or veins, to the escape of the coloring matters of the blood into the skin, or to freaks of pigmentation. They may occur in the course of measles, yellow fever, cancer, impoverished blood, uterine disorders, and many other conditions besides derangements of the liver. When due to the latter cause the patches are frequently yellowish brown, and appear on the face.

Sepia.—Men, but especially women having a yellow, or dirty yellow-brown blotched skin; who are inclined to sweat especially about the genitals, armpits and back; suffer with hot flashes; headaches in the morning, awaken stiff and tired, and are subject to diseases of the sexual organs. There may be biliousness, constipation, sediment in the urine.

Chilidonium.—Yellowish-brown patches in those having affections of the liver, with jaundice, yellow-coated tongue; bitter taste in mouth; pain under right shoulder blade; shooting pains in region of the liver; clay colored or yellowish stools.

Nux vom. and *Sulphur* are frequently helpful. Give a dose of the indicated remedy night and morning until the color fades and the spots disappear. Tea, coffee and alcohol are forbidden, also sugar, much fat in any form, new bread, cake, pastry and fried foods. Lean meat and green vegetables are allowed, also fruits sparingly. Water should be drunk freely, baths taken daily, and exercise in the open air.

Scurvy.—*Scorbutus*.

THE cause and symptoms of scurvy are well given on page 530. While medicines occupy a secondary place in the treatment, they are nevertheless of value in cases which do not respond promptly to changes in diet, habits and surroundings.

A form of scurvy called scorbutus occurs in infants and may be mistaken for rheumatism because there is much pain about the knees and legs on motion. But in scorbutus the characteristic symptoms of scurvy are present, the black and blue spots, extreme debility, swelling of the gums, which bleed easily, etc., but it is usually the severe pain in the legs which first attracts attention in infants.

Mercurius Viv.—Scurvy with ulcerated gums; mouth waters constantly; bad breath; puffy tongue; tenderness over the stomach, and diarrhœa.

Muriatic Acid.—Great muscular debility, feeble action of the

heart, the patient slides down to the foot of the bed absolutely helpless; ulcers in the mouth, the lips raw and cracked.

Nitric Acid.—Extensive ulceration of the gums; gums white, swollen and bleeding; ulcerated spots on the inner surface of the cheeks; foul breath; profuse flow of saliva; blisters and ulcers on the tongue; tearing, stitching pains; great weakness.

Natrum Mur.—An excellent remedy in cases with dry, yellowish skin; emaciation, debility; sore mouth; ulcers on the tongue and gums; bad breath; headache as if the head would burst; fever blisters on lips; often palpitation of the heart.

Also *Arsenicum* or *Lachesis* when the whole system is badly involved, and the sores and ulcers threaten to become gangrenous; the pains are severe and burning; the face pale and sunken. *China* or *Ferrum phos.* may be given during convalescence, especially after loss of blood and when the patient's recovery is slow, and debility marked. A dose of the indicated remedy may be given three times a day.

The general treatment of scurvy is well outlined on page 531. Infants should be given fresh cow's milk; cream; beef-juice; orange or lemon-juice, and if the child is over one year, bread and butter and baked potato.

Itch.—*Scabies.*

SMALL pimples first appear between the fingers, in the bend of the wrists or elbows, the groin, under the arms or, in women, the breasts, and about the ankles in children. The face is not affected. The cause of the disturbance is the itch-nute or *acarus*. A good description of this parasite will be found on page 167. The local treatment is of special importance in these cases, but internal remedies also should not be neglected.

Sulphur.—The leading remedy; tingling, itching, burning and soreness after scratching; worse when warm in bed; rawness of the surface; glandular swellings.

Mercurius Viv.—Itching all over, and especially in the bends of the elbows, if some of the pimples contain pus; worse at night in bed, cannot sleep for the itching; diarrhoea.

Arsenicum.—Inveterate cases; eruption in the bends of the knees; burning and itching; symptoms better from external warmth.

Croten Tig.—Itching and painful burning, with redness of the skin; formation of watery pimples, and pimples containing pus; drying up and scaling off of pimples.

The patient should soak in a warm bath fifteen minutes, then be rubbed all over with soft soap and a flesh brush, to break up the burrows made by the itch-nute. Wash off the soap, thoroughly dry the surface and rub in sulphur ointment, strength 20 per cent. Do

this at night, and have fresh bed linen, also in the morning put on new underclothes. Everything worn previously or used on the bed should be baked or boiled for an hour or two. Renew the ointment the second and third night, and the fourth night take a warm bath, dry the skin and dust on talcum powder; change the underclothing and bed linen again, and treat that discarded as above. The treatment may be repeated in a week if necessary; it is not advisable to use such measures so continuously as to set up a bad inflammation of the skin.

Nettle Rash.—Hives.—*Urticaria*.

URTICARIA is an inflammatory affection of the skin characterized by the formation of whitish and pinkish elevations attended by more or less intense itching. They may be few or many; appear and disappear suddenly; be irregular in shape, the size of a pea, bean, or even egg, or extend lengthwise, and the eruption be repeated for days or months. Many times drawing the finger-nail or a pencil over the spot where the wheals have been, will produce a white line which becomes elevated and red, and shortly disappears. The eruption may occur anywhere, but generally on covered parts of the body. The cause is most frequently some digestive disturbance, the irritation of indigested food or the absorption of toxins. The following foods may produce hives: lobsters, crabs, mussels, cheese, sausage, pork, nuts, strawberries, oat-meal, mushrooms; also such drugs as quinine, copaiba, cubebs, chloral, the coal tar products, or salicylic acid.

Arsenicum.—Scarlet elevations, especially on the face and neck, the size of a half dollar; intense burning; intolerable itching, better from external heat, worse from cold and scratching; irritability of the stomach.

Apis Mel.—Sudden appearance of long, pinkish-white blotches, raised above the skin, stinging and burning; also sudden stinging sensation over whole body, passing off after sleep; all symptoms aggravated by heat, ameliorated by cold water. The arms, feet, nape of neck and palm of hands are favorite locations with this remedy, which is also especially indicated in acute cases.

Urtica Urens.—Nettle rash preceding or accompanying rheumatism; itching swellings all over the fingers; intense burning; raised red blotches, or fine stinging points, or a pale rash provoking constant rubbing, disappearing at night and reappearing in the morning; especially after eating shell-fish; may appear each year about the same time.

Calcareo Carb.—Chronic cases; white, elevated hard eruption disappearing in the cold air, or elevated red stripes on the skin, itching and burning intensely after rubbing. In children inclined to grow fat or during dentition.

Also *Pulsatilla* when the hives are of gastric or uterine origin; after eating fat pork, fruits, buckwheat cakes, pastry, etc.; burning, itching rash, worse from warmth. *Nux vom.* Nettle rash with headache, vertigo and constipation; after the use of drugs or stimulants. *Rhus tox.* when hives accompany ague or rheumatism, or come on after getting wet in persons subject to rheumatism, itching all over the body. A dose of the indicated remedy every three hours.

First find out the cause and remove it; empty the stomach and bowels of all irritating contents, and regulate diet, exercise, bathing and all other habits. Sleep on a firm mattress, with only light weight bed-clothes, and in a well ventilated room. Wear soft underclothing. Baths medicated with sea-salt, aromatic vinegar, alcohol, cologne, camphor, or boric acid sometimes alleviate the symptoms. One of the most easily prepared effective applications is starch mixed with cold water and boiled until about the thickness of mucilage; while still boiling add one drachm of zinc oxide and two drachms (teaspoonfuls) of glycerine; stir well and let cool, then apply to the affected surface. Warm vinegar and water may allay itching, or cream, one ounce to which one-half drachm of chloroform has been added. After applying a lotion, take up the excess gently with absorbent cotton or gauze, do not rub the spot; after drying, apply talcum or other dusting powder. Isolated spots in mild cases may be painted with flexible collodion.

Shingles.—Herpes Zoster.—Zona.

THIS painful disease of the skin due to injury or irritation of the nerves, is characterized by the formation of grouped pin-head to pea-sized vesicles or watery pimples, along the course of a nerve, preceded, accompanied or followed by neuralgic pains in the part affected. A marked feature is that the eruption is almost invariably confined to one side of the body. It often forms a semi-girdle about the chest or abdomen, thus obtaining the name of Zona, but may follow the course of a superficial nerve on any part of the body. Sensitiveness of the skin, or pain, and slight fever generally precedes the appearance of the vesicles which attain maturity in from three to seven days, then dry up, form crusts, and scale off; one group may be followed by another. The disease may last from ten days to three weeks, and rarely occurs but once in a lifetime. It is serious only in the aged, and in the greatly debilitated. The chief causes are exposure to cold, damp weather; injury to some nerve, certain poisons, and diseases. In some cases it is now thought to be an infectious disease.

Arsenicum.—Tendency of the vesicles to run together, with intense burning of the blisters; worse after midnight and from cold applications; in persons much debilitated, not well nourished, as feeble, old people.

Strychnia.—Much prostration; great sensitiveness and soreness of the skin, with severe neuralgic pains; headache; lack of appetite.

Rhus Tox.—Small burning vesicles, with redness of the skin; rheumatic pains during rest; symptoms worse in cold weather; shingles brought on by getting wet when overheated.

Graphites.—Zoster on the left side; large blisters from the spine round to the naval, burning when touched; worse indoors, better in the open air; in fair individuals, rather stout, and having a dry skin.

Consult the remedies mentioned under "Nettle Rash" and "Neuralgia." Give a dose of the indicated remedy every three or four hours. It is desirable to keep the vesicles unbroken, and to this end they may be painted with collodion containing ichthyol, one drachm of the latter to one ounce of the former; or one-half ounce of collodion containing two grains of morphia sulph., when the pains are severe. Ordinary dusting powders of starch, talcum, or oxide of zinc make a good dry dressing, the surface being covered with absorbent cotton filled with the powder, and kept in place by a light bandage. Galvanism is often highly beneficial for neuralgic pains persisting after the eruption has disappeared.

Eczema.—Salt Rheum.—Tetter.

ECZEMA is a non-contagious, inflammatory disease of the skin occurring in many different forms, the commonest of which are described on page 166. That occurring on the face of infants is frequently called "milk crust." Chronic eczema is known as "salt rheum." The causes of eczema are both internal and external, and include indigestion, constipation, general debility, rheumatism, diseases of the kidneys, scrofula, teething, diseases of the uterus, the use of soaps containing too much alkali, irritation of the skin by chemicals, friction, scratching or parasites, over-feeding, especially in children, unhygienic surroundings. To learn the cause should be to endeavor to remove it. Eczema may coexist with any other skin affection, or be the expression of some disease of an organ or the whole system which must first be cured.

Rhus Tox.—Redness of the skin, quickly followed by the formation of vesicles, the watery contents changing to pus; the skin is often puffy; burning and itching worse at night and in cold weather.

Mezereum.—Scrofulous cases, in which hard, thick crusts form, crack and ooze pus; pimples often form about the part mainly affected.

Arsenicum.—Red or white pus-filled pimples, or painful and black, with burning and itching on the scalp, forehead, cheeks, arms, shoulders and upper part of the chest; thick crusts form which have well-marked scars.

Natrum Mur.—Cracks and fissures of the lips, chapping of the lips; fever blisters; cold-sores; chapped hands, skin rough and dry. In the very beginning of a cold-sore apply camphor or pure alcohol.

Mercurius.—Eczema with suppuration, the pustules run together and discharge an acrid humor, or remain sore, bleed easily and are painful to the touch; itching and burning worse in bed; the sufferer sweats easily.

Sulphur.—Dry, thick yellowish scabs all over the body, especially on the scalp; painful to touch; great itching; aversion to washing.

Calcareo Carb.—Heat, thirst and loss of appetite accompany the eruption which is often on the head, and extends to the face; white, chalky-looking crusts; especially in scrofulous children.

Also *Sepia*, with itching pimples on the chin; eczema of fingers with the formation of little ulcers. *Silicea*, pimples filled with pus all over the body, do not suppurate or dry up, sensitive to touch; chronic eczema in persons subject to eruptions and swelling of the glands. A dose of the indicated remedy may be given every three or four hours.

Much attention must be paid to the general condition. Omit from the diet sugar, cake, pastries, fried food, cheese, shell-fish, salt fish or meats, pickles, nuts, tomatoes, rhubarb, and all stimulants. Cod liver oil is well adapted to scrofulous or debilitated individuals, also a good preparation of iron. A liberal, wholesome diet, including cream, butter and other fats is necessary, and the drinking of at least three pints of water a day. Alkaline mineral waters are recommended. Exercise especially of the muscles of the arm and trunk should be systematically taken. Let "blood purifiers" alone; they frequently aggravate the trouble. Soap and water is harmful in most cases of acute (recent) eczema, and rubbing and scratching will undo all the good remedies and applications can effect. Protect the parts from all irritation, and keep as quiet as possible. When water must be used, soften it with borax, bran or soda. Olive oil, to which has been added one per cent. of carbolic acid, may be applied to soften crusts, but dressings soaked with oil should not be kept on many hours at one time lest the skin be weakened and macerated. When there is no discharge a very fine dusting powder such as zinc, talcum, starch, rice-flour, or lycopodium may be applied. A good lotion which may be applied, and the skin then gently dried before using a powder, is prepared by combining two scruples of carbolic acid, one drachm of oxide of zinc and two drachms of glycerine with enough limewater to make one-half pint in all. Tar or zinc ointment will be found helpful in many cases of chronic eczema.

Small Pox.—*Variola*.

It is not uncommon for those living far away from towns and cities to be obliged to care for cases of smallpox. The disease is well described in earlier pages of this book. Vaccination is the surest preventive known and should be immediately repeated when a person has been exposed to infection, even although previous inoculation has given satisfactory results.

Tartar Emet.—The leading remedy; it reduces the fever, and the pustules run their normal course; is also useful when there are lung or stomach complications. Given early it mitigates the severity of the disease.

Belladonna.—High fever; severe local symptoms; throbbing of the arteries in the neck; eyes bloodshot; aversion to light; sore throat; pain in the back; difficulty in getting any sleep, or in passing urine.

Mercurius Viv.—When the eruption contains pus; tongue moist and swollen; throat ulcerated; breath foul; great thirst and flow of saliva; diarrhœa.

Arsenicum.—Bad cases; great prostration with tendency to hemorrhages; eruption dark; skin blue; small, frequent pulse; thirst; burning heat; great restlessness.

Rhus Tox.—When the eruption is watery, and runs together; burning and itching; or when patient has many of symptoms like typhoid fever (which see) and is much exhausted.

Also *Sulphur* when the eruption is drying up. *Bryonia* when the eruption is delayed or suddenly disappears. *Phosphorus*. Bloody pustules, hard, dry, exhausting cough, with pain, or rawness in chest; bronchitis; bleeding from the lungs; frequent faintings. A dose of the indicated remedy every one or two hours.

While the general treatment is quite fully given on page 160, it may be said by way of emphasis that the patient should be strictly isolated and quarantined, in a darkened, well-ventilated room; should be often sponged with alcohol or tepid water; gargles (see "Inflammation of the Larynx") used for sore throat, and the face anointed, after careful cleansing, with fresh lard and charcoal, vaseline, almond oil or sweet cream to prevent pitting. The pustules should not be broken or irritated.

A new method of treatment, the Finsen red light treatment, has proved successful in several cases, and consists chiefly in placing the patient in a room to which no light is admitted that is not first filtered through red glass or other material that will effectively shut out the chemically active rays of light. Treatment should be begun at the earliest possible moment, and is said to prevent suppuration and scarring.

Diseases of the Digestive Organs.—*Toothache.*

Plantago.—Great sensitiveness of the teeth, and feeling of elongation; pain worse from cold air or contact; neuralgic form. A dose every ten minutes, if necessary.

Chamomilla.—Toothache from a draught, suppressed perspiration, or mental emotions, jerking, shooting, tearing, intolerable pains, affecting the whole side of the face; worse after eating, from warmth, and at night; especially in children. A dose every fifteen minutes to an hour.

Mercurius Viv.—Decayed teeth, with tearing pains extending to the glands and ears; worse from cold food or drink; cool, damp air, or the warmth of the bed. A dose every one or two hours.

Belladonna.—Drawing, cutting, or *shooting* pains in the teeth, face and ears; worse at night, in the open air, or when lying down. A dose every fifteen minutes to one or two hours.

Pulsatilla.—Throbbing or digging pains, extending from the decayed tooth to the eye; worse at night, in a warm room, from warm drinks or food. Better in cold air and from cold drinks. Toothache, especially in quiet, sensitive women.

Decayed teeth should be filled at once, whether belonging to the permanent set or not. A pledget of cotton wet with plantago or creosote may be placed in a cavity to relieve pain.

Inflammation of the Tongue.

INFLAMMATION of the tongue begins with great congestion, redness and swelling. The tongue may protrude beyond the teeth, and is tender and painful; a grayish-white secretion forms on the surface; the tongue becomes dry, cracked and ulcerated; chewing and swallowing are difficult. Burning the tongue, chemicals or the bites or stings of insects may cause this affection. The disease may be acute or chronic.

Belladonna.—Tongue red, smooth, slimy with intense heat, pain and swelling. Later on give *Mercurius sol.* if the tongue is covered with a slimy coating, and is swollen and flabby, with much watering of the mouth. *Hepar sulph.* when suppuration occurs, with sharp, splinter-like pains.

Arsenicum.—Tongue dry, burning, cracked and ulcerated, especially if the inflammation is chronic. A dose of the indicated remedy may be given every two hours in acute cases; three times a day, in chronic.

Rinse the mouth frequently with some mild antiseptic, listerine or glycothymoline, one to four. Ice in the mouth is generally grateful. The diet should be liquid, and nourishment should be given by rectal injections if necessary.

Stomatitis.—*Canker and Thrush.*

THERE are many kinds of inflammation of the mouth, the simple, the aphthous, where little ulcerated patches form; the putrid, which is even more severe than the aphthous, and affects the gums causing them to shrink, ulcerate, and recede from the teeth; the parasitic, called thrush, and caused by a parasitic plant or fungus; the gangrenous or cankerous, causing sloughing in bad cases.

Canker generally appears first, as little, hard sore spots on the inner surface of the lips, cheeks, or gums; these may ulcerate, and when on the cheek it may be perforated in from three days to a week. Severe cases often result in death. Canker occurs most frequently in feeble, sickly children, but may affect adults.

Borax.—Irritable stomach; mucous membrane of mouth shrivelled; red blisters on the tongue; may be easily bleeding, ulcerated patches; thirst; sometimes vomiting.

Mercurius Sol.—Ulcerative sore mouth; gums ulcerated and bleed; foul breath; watering of mouth; tongue swollen, and shows prints of the teeth which may be loose.

Sulphuric Acid.—Mouth very sore; recurrence or extension of sore spots or ulcers; watery, greenish diarrhœa.

Arsenicum.—Great debility and prostration; mouth reddish blue; tongue red and blistered; bad breath; gums swollen and bleeding; emaciation; disease resists treatment.

Also *Sulphur*. Blisters on the tongue and in the mouth; great dryness; feeling of heat and burning; irritable stomach; diarrhœa. *Kali chlor*. Mucous membrane of the mouth red and swollen; grayish ulcers, foul breath; tough, stringy saliva. A dose of the indicated remedy every three or four hours.

In simple catarrhal inflammation of the mouth or where there are ulcerative patches, washing the mouth frequently with ten grains of boric acid to an ounce of water is recommended. For the curdy spots in thrush which can be brushed off, but which rapidly reform, use a wash of bicarbonate of soda, one drachm to one ounce of water. A baby's mouth should be washed before and after nursing; plain boiled water may be used, or the above named wash. When there is extensive ulceration with great foulness use one part peroxide of hydrogen to ten parts water. Another excellent mouth wash consists of three grains of potassium chlorate to an ounce of water. Absolute cleanliness; light, nourishing food; pure air; sunshine; warm, but not excessive clothing are absolutely essential, also hygienic surroundings. Persistent ulcerative spots or ulcers may have to be cauterized with nitric acid.

Pharyngitis.

BETWEEN the back of the mouth and the esophagus, or canal leading to the stomach, is the portion of the throat called the pharynx. This is liable to the same inflammatory conditions from cold or extension of disease from nearby parts. There is chilliness, dryness and soreness of the throat, with constant desire to clear it, and the tonsils and palate may be swollen. Cough, swelling, and tenderness of the muscles of the neck may occur, and although an acute attack may pass off in two or three days, the condition may assume a chronic form. Consult the remedies under "Sore Throat." The first three will be called for in the order there given. The other remedies are equally valuable when called for.

Also *Capsicum*. Chilliness down the back; the palate feels longer than it should; the throat sore, smarting and biting. *Gelsemium*. The back of the mouth dry, irritated and burning; the tonsils inflamed; burning in the esophagus. *Hepar sulph.* The throat feels scraped, and as if a fish bone had stuck in it. *Argentum nit.* Chronic pharyngitis; palate and back of the throat dark red; much thick, tenacious mucus, which has to be hawked up, rawness and scraping in the throat. *Nux vom.* Throat raw, sore, rough as if scraped, in the morning, when swallowing, or on inhaling cold air; voice hoarse; has to clear the throat constantly, especially in the morning; indigestion or disorders of the liver.

A dose of the indicated remedy every one or two hours in acute cases; three times a day in chronic cases. The observance of hygienic laws is essential. Local treatment will be found under "Sore Throat."

Hiccough.—*Singultus*.

HICCOUGH may accompany serious diseases, such as inflammation of the kidneys, liver or stomach. Generally, however, it is but a symptom of indigestion from improper food, or a spasmodic manifestation of simple nervousness or hysteria.

In ordinary acute cases due to indigestion, give *Nux vom.*, a dose every fifteen minutes. *Moschus* or *Ignatia* in hiccough accompanying hysteria. *Arsenicum*. Hiccough after eating, and in malarial cases hiccough instead of fever at the hour fever should appear. *Pulsatilla*. Hiccough when smoking, or after eating rich or fat foods.

Holding the breath sometimes gives temporary relief, sipping water, or taking a little sugar or lemon juice.

Dyspepsia.—*Indigestion*.

THE causes and symptoms of dyspepsia are described at length in the first part of this book. It should be especially noted in this connection that indigestion may be of nervous origin, or due to an

inflammation of the lining membrane of the stomach, gastritis. So far as possible find and remove the cause, and select the remedy in accordance with the general condition of the patient, and not from the stomach symptoms alone.

Headache is often of sympathetic origin, and due to indigestion, so also is pain and palpitation of the heart, heartburn or waterbrash, dizziness and blurred vision.

Nux Vom.—Distress in the stomach, coming on an hour or so after meals; sour, or bitter taste in the mouth; flatulence; distention of stomach; hiccough; sour risings; heartburn; nausea; sometimes vomiting; palpitation of the heart. Indigestion, especially in dark-haired, nervous, energetic, irascible persons, and those of sedentary occupations, with tendency to constipation or piles, also after using patent medicines, cough syrups, etc.; nervous dyspepsia. A dose three times a day.

Sulphur.—Follows *Nux* well, especially in chronic cases, with constipation and piles; canine hunger, flatulence, and desire for sweets. A dose morning and night.

Bryonia.—Indigestion, in warm and wet weather, and in bilious and rheumatic persons, with constipation; bitter taste and bitter or sour risings; nausea, or bilious vomiting. A dose every four hours.

Pulsatilla.—Indigestion from pork, pastry, ice-cream or ice-water, with sour risings; heartburn; furred, white tongue; nausea and flatulence, especially in lymphatic persons with fair hair and complexion and easy disposition. Indigestion from exposure to wet or cold. A dose every four hours.

Arsenicum.—Burning pains with anguish; painful distention of the stomach; nausea or vomiting excited by eating or drinking; very thirsty but can drink but little at a time; water seems to disagree; rapid prostration. A good remedy after the excessive use of ice-water or tobacco. A dose every three hours.

Antimonium Crud.—Tongue heavily coated white; catarrh of the stomach; loathing of food, constant nausea and tendency to vomit. Indigestion from overloading the stomach with fats, sweet things, sour wines, etc. Give as above.

Lycopodium.—Great flatulence; excessive hunger, but a small quantity of food fills the patient up; sour taste in mouth, and sour eructations. Indigestion after eating starchy foods, and chronic cases with liver troubles or gout. Give as above.

Carbo Veg.—When *Nux vom.* has not given relief, and after the abuse of rich food or stimulants; great flatulence; aversion to meat, fat foods and milk; acrid risings; heartburn; sensitiveness and burning in the stomach. Indigestion from salt or spoiled meat or fish. Give as above.

Also *Ignatia* when indigestion follows grief, hysteria or great nervousness; weak, empty, sinking feeling in stomach; frequent sighing, and melancholy. *Ipecac.* Tongue clean, constant nausea and inclination to vomit; after ice-cold food or drinks, pastry, pork. *Cinchona.* Indigestion, following loss of blood, exhausting diarrhoea, or from malarial influences, with fullness and distention of stomach, flatulence, and drowsiness after eating. A dose three times a day.

The general advice given in the corresponding section in the first part of the book is very good. In acute attacks always empty the stomach of irritating substances by provoking vomiting, as with tepid water or tickling the throat with a feather. Then give it rest, especially if there is vomiting. White of egg, Vichy and milk, and light gruels are generally borne best in acute cases. All errors of diet, constipation and mode of living must be rectified. Consult the sections on "Constipation" and "Headache."

Bleeding from the Stomach.

BLOOD from the stomach is generally dark, often clotted, and frequently mixed with food. It may be vomited or spit up in ulcer or cancer of the stomach; be due to injuries, or many diseases such as typhoid fever, smallpox, yellow fever, scarlet fever or diphtheria. It may also first have been swallowed from the nose or throat.

Ipecac.—Sudden attacks, with pale face; nausea; vomiting of blood; great faintness; oppressed breathing; feeble pulse. A dose every fifteen minutes.

Hamamelis.—Thin, dark blood; fulness and gurgling in the abdomen; patient tremulous, weak, and cold; quick pulse; profuse perspiration. Give as above.

Also *Arsenicum* in recurring bleeding from the stomach when the patient has an ulcer or cancer; constant nausea and retching; great thirst for water often and in small quantities; quick, thread-like pulse; much anxiety. A dose three times a day between attacks.

Turpentine, the first solution, in drop doses on sugar is highly recommended in bleeding from the stomach due to injuries. *Arnica* may be given in these cases if turpentine is not available or effective. *Phosphorus.* Bleeding from the stomach; blood with mucus, black or like coffee grounds; persons who bleed easily.

Bits of ice may be swallowed; the patient should remain in bed, and the room be kept quiet; an ice bag may be applied to the spine, and ice cold compresses to the stomach; nourishment must be given by rectal injections only.

Nausea and Vomiting.—Sea-Sickness.

NAUSEA and vomiting are symptoms of some derangement of the stomach or of disease elsewhere in the body, and also may occur

during pregnancy. Consult the section on "Indigestion," where will be found the indications for the application of *Nux vom.*, *Pulsatilla*, *Bryonia*, *Ipecac*, and *Arsenicum*.

With the nausea and vomiting of sea-sickness and car-sickness nearly everyone is familiar. While there may be no cure for sea-sickness always to be depended upon, the writer is confident much may be done to prevent and mitigate this affliction, for such it is to most travellers.

Nux Vom.—A dose three times a day, several days before sailing.

Cocculus, 6 x.—Great nausea, vomiting, or inability to vomit; faintness, giddiness, palpitation of the heart; sea-sickness, especially from passive motion of the vessel, as when there is a swell on. A dose every hour or two; should follow *nux*.

Also *Ipecac*. Persistent nausea with frequent, free, copious vomiting. *Apomorphia*, 3 x. Ordinary sea-sickness, with vomiting whenever the head is raised.

Let the sufferer stay on deck, have plenty of warm wraps and a hot water bottle; persist in eating but do not take soups or gruel; coarse, simple, solid food, little and often, is by far the best; coarse, stale graham bread and an underdone chop, or rare steak and pilot bread are suggested. Strong, boiling hot tea without milk or sugar, or coffee may be taken, or iced champagne. It is well to drink a cup of tea and eat a cracker before leaving one's berth in the morning. A strip of flannel pinned tightly about the abdomen gives a feeling of comfort and support.

Looseness of the Bowels.—*Diarrhœa*.

THE very old and the very young are most liable to attacks of diarrhœa. Its causes are for the most part avoidable; improper or too much food, exposure to cold, wet or dampness, as sitting on the cold ground; cold drinks or ices taken when heated; tainted foods; impure drinking water; excessive emotion. Other causes are sudden changes in temperature; exposure to sewer gas or working among chemicals; the retention of irritating substances in the intestines. The symptoms are familiar to all, and are mentioned under the remedies.

Aconite.—After cold or damp, or checked perspiration, frequent, scanty, loose, green stools with straining; fever, and restlessness. *Ferrum phos.* instead when fever and restlessness are slight, and diarrhœa follows checked perspiration.

Podophyllum.—Early morning diarrhœa, frequent, painless, profuse, yellow, watery stools, preceded by retching and vomiting; protrusion of rectum during stool; also diarrhœa during teething. A dose every two hours.

Aloes.—Involuntary, bloody, jelly-like, mucous stools, preceded by pain and rumbling in bowels; morning diarrhœa, followed by great weakness. A dose every two hours.

Mercurius Cor.—Stools slimy, bloody or black, with great urging and straining—a “never get done” feeling; cutting, pinching pains; colic before stool. A dose every hour.

Chamomilla.—Very useful for children, especially during teething and from taking cold; green, watery stools smelling like rotten eggs, with colic.

Sulphur.—Diarrhœa some hours after midnight, or driving patient out of bed *early in the morning*; pappy, greenish-yellow, fetid, slimy stools.

Caprum Ars.—Crampy, colicky pains; restless tossing; straining of the rectum and bladder; violent, greenish or grayish stools.

Veratrum Alb.—Violent, painful, watery, copious discharges, with profuse perspiration, followed by great prostration.

Gelsemium.—Diarrhœa in nervous subjects, excited by depressing emotions or “stage fright.”

China.—Painless, watery, sour diarrhœa, or stools containing undigested food; evacuations mostly at night; pinching colic; also when there is great exhaustion following diarrhœa.

Arsenicum.—Small, watery, foul, mucous or bloody discharges, with much burning in the rectum; rapid exhaustion; thirst; restlessness.

Also *Colocynth*. Diarrhœa with severe colic, relieved by bending double. *Bryonia*. Diarrhœa in *hot weather*; brown, thin stools, worse in the morning on moving about. *Ipecac*. Greenish, mucous, *yeasty* stools, with colic and *constant nausea*.

A dose of the indicated remedy every one or two hours. Perfect rest in bed is essential in acute cases; no food for twelve hours, then only barley water; arrowroot, flour or rice gruel, later mutton broth, thickened with rice or cracker crumbs; the return to the usual must be gradual. A hot-water bag to the abdomen is grateful.

Chronic Diarrhœa.

CHRONIC diarrhœa may follow an acute attack, accompany other diseases, or develop in camps, prisons, etc. from bad hygiene, exposure, fatigue and improper food. In the beginning the sufferer may seem in fair health, but very slight causes excite looseness of the bowels; diarrhœa may alternate with constipation. The size of the stools is frequently indicative of the extent and severity of the disease, usually the amount is from two to four ounces.

The indications given for *Mercurius cor.* and *Arsenicum* under "Looseness of the Bowels" should be read. Pus, blood and much mucus may be present in the stools when the former remedy is called for. Under *Arsenicum* in chronic cases there is little or no straining, the stools are frequent and variable in character, and worse after food and exercise; great prostration and emaciation. *China* follows this remedy well. *Aloes* is serviceable with yellow stools passed unintentionally when making water or emitting gas; slight colicky pains; dull headache in forehead. *Sulphur*. Early morning diarrhœa with excessive emaciation and prostration. *Calcarea carb.* Chronic diarrhœa in scrofulous persons, or fat, plump children, with clay-colored, sour, undigested stools; head sweats during sleep. Any of the remedies mentioned under "Looseness of the Bowels" may be required for cases with corresponding symptoms. A dose of the indicated remedy may be given three times a day.

The cause of the trouble must be sought, and removed if possible. Even in mild cases as much rest as possible should be taken, especially before and after meals; fruits and vegetables must be omitted from the diet as a rule; milk, plain, peptonized or malted is excellent; warm baths and cold sponge baths are beneficial and necessary; gentle friction and massage of the extremities tend to lessen congestion of internal organs.

Dysentery.

DYSENTERY is often a serious affection and may be fatal. Its chief characteristic symptoms are griping pains in the abdomen, followed by scanty stools of mucus and blood, accompanied by much straining and often ineffectual urging to stool. An extended description of the disease in both its acute and chronic form, is given in the early part of this book. Dysentery is probably a germ disease and, in many cases, capable of being transmitted from one person to another. The causes mentioned under "Looseness of the Bowels" favor the development of dysentery; it is also very common in hot climates. Mild, catarrhal or mucous cases last from five to ten days; more severe ones from three to four weeks; the epidemic, tropical form may result fatally or merge into the chronic form, or recovery be slow and tedious.

Mercurius Cor.—Stools frequent, slimy, scanty, composed of offensive mucus tinged with blood, or containing shreddy matter like the scrapings of hog's intestines, with severe, cutting, griping, abdominal pains, persistent urging to stool, and straining; flabby, coated tongue; burning and urging in the bladder and rectum.

Arsenicum.—Severe cases, with much exhaustion; stools of thick, dark green mucus, or dark, bloody, watery; very offensive; burning pain in the rectum, which is sore and raw; feeble pulse; great thirst, but for only a little water at a time.

Belladonna.—Violent fever; retention of urine; nausea; vomiting; scanty, bloody, slimy stools, with urging and straining; spasmodic, clutching pains; marked stomach symptoms; abdomen distended, hot and painful.

Cantharis.—Blood streaked, mucous stools like *scrapings of the bowels*; cutting and burning in anus; straining in bladder as well as in bowels.

Aloes.—Loud gurgling in abdomen; fullness and weight before stool, faintness after stool; bloody, *jelly-like* mucous discharges.

Colchicum.—Dysentery in the autumn; transparent, jelly-like mucus or bloody mucus containing white particles; griping colic before stool with much urging; pain better after a movement; great prostration; aversion to the smell of food.

Nux Vom.—Violent urging; pressing pain in the back and loins, the back feels broken; great heat and thirst, with red face; the pains and urging cease with the evacuation. After the abuse of diarrhoea mixtures.

Also **Ipecac.** Green, frothy, mucous stools; violent colic and urging; loathing of food; nausea and vomiting. **Capsicum.** Frequent, mucous stools mingled with dark blood; cutting colic; drawing pains in the back; great thirst, but after every drink shivering. **Nitric acid.** Chronic dysentery, especially when the bowels are ulcerated and there is pus in the discharges; green or bloody mucous stools, very foul; much urging during stool and exhaustion afterwards. **Sulphur.** Chronic, obstinate cases, slimy, blood-streaked stools; worse in the early morning. A dose of the indicated remedy every hour or two in acute cases, and three times a day in chronic.

Absolute rest in bed in a sunny, well-ventilated room is of the greatest importance; the patient should use a bed pan containing a little disinfectant, and the evacuations should be disinfected before being emptied out. For the urging and straining the intestines may be flushed out with a four-quart injection of hot water, temperature about 110 °, using a fountain, not a bulb syringe, and letting the water run in gently, or give a rectal injection of two or three ounces of boiled starch to which ten to twenty drops of laudanum have been added. Hot sponge baths are soothing, also a flannel binder about the abdomen, or hot fomentations to the abdomen, or a partly filled hot water bag. The nourishment may be the white of egg; hot milk, plain, peptonized or malted; hot, thin gruels of rice, arrowroot, corn-starch; soda water and milk or barley water may be given, and in some chronic cases beef juice may be well borne or scraped raw beef.

Cholera Morbus.

IN cholera morbus there is moderate diarrhoea; nausea with abdominal pains; and gas in the stomach and bowels; or the attack

comes on suddenly with colicky pains, vomiting, diarrhœa, with frequent and copious evacuations, and, in severe cases, great prostration; cold, clammy sweat; voice husky; blueness of the skin, and pulse small and feeble. Response to the indicated remedy is generally prompt. Consult the section on "Asiatic Cholera" for the indications for *Veratrum alb.*, *Camphor*, and *Arsenicum*. *Cuprum* may be needed in severe cases. Also *Podophyllum*, when the vomiting and pain are not severe, or are entirely absent, and the stools are profuse, watery, yellow, and of an offensive odor. *Ipecac.* The milder class of cases, with green discharges, and the nausea and vomiting much more severe than the other symptoms. A dose of the indicated remedy every fifteen minutes to one hour.

Liquid diet and rest in bed during the acute attack; large, hot rectal injections three or four times a day with a fountain syringe; cold drinks in small quantities only; hot applications to the abdomen. or a hot bath.

Preventive measures include avoidance of unripe or overripe fruit, of stimulants or large quantities of ice water, getting in a draught. When over-heated, sitting on damp ground. Wear a flannel binder about the abdomen if subject to bowel troubles.

Cramps or Neuralgia of the Stomach.—*Gastrodynia*.

THE symptoms of this affection are intense, griping, agonizing pain in the stomach usually extending to the back, with belching of gas, faintness, and intermittent pulse. Pressure on the stomach is well borne. The attack lasts from a few minutes to half an hour or more. Sometimes the paroxysms subside very slowly. True neuralgia of the stomach is of nervous origin.

Nux Vom.—Persons of sedentary habits suffering from overwork, constipation, irregular eating, excesses in tobacco, alcohol, tea or coffee; griping, clawing pains especially in the morning.

Fowler's Solution.—One to three drop doses three times a day, for burning neuralgic pains of the stomach, radiating in different directions, and occurring in debilitated persons with impoverished blood.

Argentum Nit.—Gnawing pains which come on and depart slowly, especially in weak, emotional delicate women; pain much worse from eating; pressure and bending double gives some relief; indigestion between the attacks.

Cuprum Ars.—Severe, tormenting contracting pains in and about the stomach; loss of appetite; hiccough; nausea, especially in those suffering from nervous dyspepsia. Give as early in the attack as possible.

Also *Belladonna* for attacks appearing and passing off suddenly, pressing, drawing, cutting, wrenching pains in the stomach, causing

patient to bend backward and hold his breath; periodical attacks, with trembling, especially at night.

Take a dose of the indicated remedy every ten or fifteen minutes during the attack, and three times a day in the intervals. Apply over the stomach during pain, flannel wet with chloroform and alcohol, equal parts. In very acute and distressing attacks, ten drop doses of *Chloroform* may be taken internally. The bowels should be kept free; simple digestible food taken in small quantities; solid food must be eaten slowly, thoroughly masticated; do not eat when tired; avoid worry and overwork; cheerfulness, change of air and surroundings are important.

Cancer of the Stomach.

CANCER of the stomach is a disease stealthy in its approach, its early symptoms being simply those of indigestion, with great acidity, flatulence, loss of appetite, and foul breath; then the general health is undermined, the sufferer loses flesh and strength; gnawing, burning pains develop, with vomiting after eating or some hours later, depending upon the location of the cancer. As the disease progresses there is bleeding, which darkens the color of the vomited matter, causing the "coffee ground" vomit; the skin becomes earthy and waxy in appearance; the pulse small, weak, and quick, and respiration is quickened; the ankles swell; emaciation increases, also prostration; the tongue is pale and heavily coated. The disease is not common in persons under forty, and runs its course in from two months to two years. Treatment must be directed toward making the patient as comfortable as possible.

Arsenicum.—Frequent vomiting; intense, burning, cutting, shooting pains often accompanied by throbbing.

Conium.—Violent vomiting of "coffee ground" vomit; pressing, burning, stitching or cutting pains in the stomach, extending up through the chest; trembling of the limbs; exhaustion and faintness.

Carbolic Acid, 2 x.—Vomiting, pain and frequent slight hemorrhages; great acidity of the stomach; very foul breath.

Kreosotum.—Nausea and retching, with much saliva in the mouth; everything tastes bitter; burning in the mouth; tongue coated white; face pale or blueish; great prostration.

Also *Nux vom.* for the vomiting of sour mucus; bitter, sour eructations; pressure and fullness in the stomach, with much wind, and gas in the bowels; scraped, raw feeling from the mouth to the stomach. *Kali bich.* where much ropy, glairy mucus is vomited, with burning in the pit of the stomach; tongue coated thick, yellowish-white, or smooth, red and cracked. *Argentum nit.* Violent belch-

ings of gas; vomited matter stains bedding black; violent neuralgic pains in the stomach, with throbbing, and painful swelling.

The sufferer must be made as comfortable as possible, and in the later stages of this disease probably nothing will relieve pain except opium or its derivatives; perhaps morphine is the best form in one-eighth grain doses, combined with five grains each of bicarbonate of soda and subnitrate of bismuth. Nourishment should be given every three hours, predigested liquid foods being borne best as a rule, such as malted or peptonized milk; other foods are allowable if desired; it may be necessary to give nourishment by the rectum. Washing out the stomach is of importance when vomiting is severe, but must be done by a physician. Sipping iced champagne or swallowing small pieces of ice may relieve vomiting. Operation may benefit some cases.

Cancer of the Liver or of the Intestines.

To give a separate section to each of these subjects is unnecessary, because neither physician or layman can treat these cases with any expectation of curing them. A few facts about this dreaded disease are of especial interest, for instance, that cancer of the intestines is very rare, constituting only from four to eight per cent. of all cases of malignant growth, that in the beginning there are no absolutely constant symptoms, even pain may be absent for a long time, or again a vague pain may be persistent and worse at one spot. Constipation and diarrhoea may occur in alternation, and, in the later stages of the disease, the stools contain blood, pus, and a fluid having a very foul, putrid odor. The patient's countenance has the waxy, pinched appearance characteristic of cancer; emaciation takes place, and death ensues in from six months to three years. Often the location of the cancer can be determined on examination.

Cancer of the liver follows in frequency cancer of the uterus and of the stomach, is more common in men than women, and in the latter generally follows cancer of the breast or uterus. A dull, boring pain and tenderness, with enlargement are the most constant symptoms; jaundice occurs in about one-half the cases, but may be slight. Death occurs in from three to fifteen months.

In both cancer of the liver and cancer of the intestines, the remedies given under "Cancer of the Stomach" may be used to relieve the pain and stomach symptoms, especially *Arsenicum*, *Conium*, and *Nux vom.* The diet may be the same recommended in the section referred to, broths and lean meats being also permissible. As the disease progresses some form of opium becomes a necessity, and should not be withheld. Operation in some cases, especially in cancer of the rectum, prolongs life.

Inflammation of the Liver.

THERE are various forms of inflammation of the liver, acute and chronic, from simple congestion to the formation of abscesses. The

excessive use of alcohol is the cause of some of the most serious affections. In acute cases there is generally a drawing sensation on the right side in the region of the liver, slight chill, fever; headache, indigestion, even to nausea, and vomiting; jaundice; scanty urine; sometimes hiccough; weakness and loss of flesh.

Aconite.—May be given early when there is a decided chill, followed by high fever, with unbearable, stitching pains in the region of the liver; nervousness, anxiety, and restlessness.

Belladonna.—Early in the attack, with throbbing and oppressive pain in the region of the liver, extending to the shoulders; worse on motion; nausea; retching; vomiting; continued fever; moaning and starting in sleep; congestion of the head.

Nux Vom.—Enlargement and hardening of the liver, shooting, pulsating pains; great tenderness in the region of the liver; feeling of pressure in the abdomen and chest, with short breath; constipation; inflammation from excess of stimulating food or alcohol.

Mercurius Viv.—Fullness over the liver; soreness and swelling; pricking, burning, pressive pains, worse on motion; clay-colored or yellowish-green stools; tongue coated yellow; bad breath; patient cannot lie on right side.

Bryonia.—Acute, sharp, stitching pains, worse by motion; coated tongue, with bitter taste; severe headache and constipation.

Chelidonium.—Chronic congestion; constant pain under the inner angle of the right shoulder blade; sallow skin; yellow-coated tongue; dull headache; constipation; fullness in region of the liver.

Also *Sulphur* in chronic cases, with constipation or early morning diarrhœa; frequent weak, faint spells, with flashes of heat. *Podophyllis*. Feeling of fullness in the right side, with *acute pain in one spot*; much biliousness; diarrhœa; bitter taste; jaundice; protrusion of the membrane about the anus. *Hepar sulph.* when, in abscess of the liver much pus has formed. *Arsenicum* when, in cases of abscess, there is much poisoning of the whole system; great prostration; dry, brown tongue; restlessness, and irritability of the stomach. A dose of the indicated remedy every two hours in acute cases; three times a day in chronic.

The diet must be liquid, especially skimmed milk and milk, while there is fever; hot fomentations or antiphlogistine may be applied to the affected region; an abundance of pure water should be taken. During convalescence eat mostly fruits, fresh vegetables, cereals and milk. If pus forms during inflammation of the liver the abscess should be opened promptly.

Inflammation of the Spleen.

THE spleen, being an associate purificatory organ with the liver, is liable to similar affections. When inflamed, it is manifest by pain in

the left side, below the ribs. The same remedies that affect the liver will also affect the spleen. For congestion of the spleen caused by running, immoderate laughter, etc., *China*, a single ordinary dose, will answer.

Jaundice.

JAUNDICE is not a disease but a symptom of disease, calling attention to the fact that there is some interference with the work of the liver, that the bile is not being properly manufactured, or that it cannot flow freely through the bile ducts because of gall stones, swelling of the lining membrane, pressure from growths, etc. Other organs may be diseased, or pregnancy or fever may cause jaundice, also some poisonous substances. The most noticeable condition caused by jaundice is the yellowness of the skin, eyes, tissue and excretions of the body. For a more extended description see page 331.

Mercurius Viv.—Complete jaundice; skin very yellow; thickly coated, flabby tongue; nausea; vomiting; diarrhœa; loathing of food; pain in the region of the liver; urging to stool; scanty, dark-red urine.

Chelidonium.—Yellowness of the eyes and skin; pain in the liver and right shoulder; bitter taste; tongue clean; stool white; urine dark red; distention and pain in the region of the liver.

China.—Malarial jaundice; oppressive headache; liver swollen hard and tender, with spasmodic, stitching pains; capricious appetite or ravenous hunger; dingy, yellow complexion.

Chamomilla.—Jaundice, especially in children; white of the eyes and face yellow; green, watery diarrhœa, with colic; bitter taste and bitter vomiting; also, jaundice following a fit of temper.

Also *Nux vom.* in the beginning if the attack seems due to the use of stimulants or errors of diet; indigestion; constipation. *Aconite.* Fever; stitches in the liver; yellow skin; scanty, dark urine; clay-colored stools; local pain. *Podophyllin.* Enlargement of the liver, with severe pain; scanty, dark-yellow urine; nausea and vertigo; clay-colored stools; especially when there are gall stones.

Hot applications may be made to relieve pain; much water and skimmed milk should be taken; in acute cases a diet mostly of milk, in chronic cases, broths, oysters, fish, vegetables and fruits; a warm bath daily; fresh air at all times. Cheerfulness and amiability assist recovery.

Gall-Stones.

It is stated that about one-tenth of all persons have gall-stones, but many who have them are never aware of the fact. Gall-stones are formed in the gall bladder from the bile; occur oftener in women

than in men, vary in number from one to a thousand or even more, and in size from that of a grain of sand to a hen's egg. Increasing age, high living, irregular habits, a sedentary life, an excess of starches and fats, and whatever retards the flow of the bile favors their formation. When gall-stones pass from the gall bladder in the ducts, and are too large to move freely, they cause a sudden, agonizing, cutting, tearing or shooting pain on the right side of the abdomen, which spreads over the abdomen and to the right chest and shoulder; the muscles of the abdomen are cramped and tender; there is nausea and vomiting; profuse sweat; a small, feeble pulse; cool skin; pale, distorted, anxious face; sometimes even fainting, chills, and convulsions from the excruciating pain. There may be great tenderness over the gall bladder, jaundice, and a temporary rise of temperature to 102 or 104 degrees. The paroxysm lasts from an hour or two to several days, with remissions, ceasing as the stone passes into the intestines.

Berberis.—Violent sticking, digging, tearing pain in the region of the gall bladder. Give at the time of the attack, and also afterward, for pain, soreness, and burning.

Chelidonium.—As an aid to the expulsion of the stones, and to prevent their formation; much jaundice, especially of the forehead, nose, cheeks, and whites of eyes; bitter taste when eating or drinking, tongue coated yellow; pain in the region of the liver, and in right shoulder

China.—One of the most useful remedies to prevent the recurrence of gall-stones and overcome the conditions they have caused. A physician of large experience recommends that six pills be taken twice a day until ten doses have been taken; then six pills every other day, till ten doses are taken; then every third day to the same extent, and so on, until a dose is taken only once a month.

Also *Colocynth* during the attack, for griping, cutting, tearing pains, bending the patient double; feeling in the abdomen as if the intestines were being squeezed between stones. *Nux vom.* between attacks for biliousness and symptoms of indigestion mentioned in the sections on "Dyspepsia," and under "Inflammation of the Liver." Unless otherwise specified, a dose of the indicated remedy every fifteen minutes during a paroxysm, and three times a day between the attacks. Two tablespoonfuls of olive oil to one of glycerine, taken two or three times a day for several days is very helpful in procuring the painless passage of gall-stones. In severe paroxysms of gall-stone colic a few whiffs of chloroform may be given, or morphine in one-eighth grain doses, but the use of the latter should be avoided if possible. Hot fomentations should be applied over the liver or hot baths taken. From two to four quarts of distilled or mineral water should be drunk daily; vegetables and fruit eaten freely; all

stimulants and excess of sweet or starchy foods avoided, and much time spent out of doors. Surgical interference is called for when there are repeated and very severe attacks of colic, or a greatly distended gall bladder, with attacks of pain and fever.

Constipation.

THE number of persons troubled with constipation is very large, yet it is a difficulty removeable in most cases. Its causes indicate this, the most usual ones being, neglect of nature's calls; overeating; insufficient exercise; drinking too little water; eating improper foods; taking purgatives. Among other causes are weakness of the abdominal muscles from too much fat; the pressure of tumors; derangements of liver; excessive nervousness, debility, or hysteria. Constipation may ultimately cause diarrhoea, ulceration or distention of the bowels, headache and indigestion.

Nux Vom.—Ineffectual urging to stool; irregular and incomplete action of the bowels; headache; nausea; bad taste in the mouth; indigestion; especially serviceable for those who have used stimulants, purgatives, highly spiced food, or who lead a sedentary life.

Bryonia.—Large, hard, dry brown stools, passed with great difficulty; bitter taste in the mouth; tongue heavily coated white; pressure after eating as if from a stone; no urging to stool; irritability; headache; especially in those of a rheumatic tendency.

Sulphur.—Feeling of heat, fullness and discomfort in the rectum, ineffectual urging; stools hard, and accompanied by itching and pressure in the rectum; habitual constipation, especially in scrofulous persons or those having hemorrhoids.

Opium.—Complete inaction of the bowels; stools of dry, hard, round, black balls; headache, dizziness, and drowsiness; constipation from lead poisoning, and during acute diseases.

Hydrastis.—Indigestion; pain in the liver; hard stools coated with mucus; habitual constipation, especially after the continued use of laxatives; gone feeling in the stomach; headache in the forehead; belching of gas.

Lycopodium.—Ineffectual urging to stool, owing to contraction of the rectum, which protrudes during stool; stools hard, and small, with a feeling that much remains; gas in the bowels and rumbling.

Also *Collinsonia* when constipation is due to piles, with sharp, sticking pains in the rectum. **Alumina.**—Even the passing of a soft stool requires great straining; stools hard and knotty, like sheep dung, with cutting pains at the entrance of the rectum (anus), followed by blood; constipation from blood poisoning. A dose of the indicated remedy night and morning.

The excessive use of purgatives irritates and inflames the lining membrane of the bowels, and torpor follows the unnatural activity induced by them. If constipated, avoid pastry, white and fresh bread, cake, fried food, cheese, hearty meals, stimulants and much tea or coffee. Eat coarse bread, fresh meats (rare mutton and beef), ripe, juicy fruits and vegetables, stewed prunes, figs, etc. Drink plenty of water, a glassful in the morning before breakfast, and eat an orange then. Keep the skin clean and active walk, run, ride horseback, play golf and ball massage the abdomen; wear the clothing loose, and be prompt in answering nature's calls. In obstinate constipation a teaspoonful to a tablespoonful of pure olive oil may be taken by mouth before breakfast.

While the excessive use of mechanical measures to empty the bowels is to be deprecated, the bowels may require a thorough emptying in the beginning, and a small injection of eight ounces of olive oil may be given, followed in an hour by an injection of hot water by means of a fountain syringe, a soft rubber tube being introduced as far as it can easily be passed. Useful laxatives are the mineral waters, such as Carlsbad and Hunyadi.

Piles.—*Hemorrhoids.*

PRESSURE of accumulated fecal matter in constipation interferes with the free flow of blood in the rectum. The veins become distended in little lumps in which the blood partially coagulates. These little lumps are called piles, and may be wholly within the rectum or protrude from it, may be bleeding or "blind" piles; the latter do not bleed. They vary in color, and are often very painful. Indolent habits, luxurious living, sedentary pursuits, the free use of stimulants, patent medicines, cathartics, diseases of the liver and sexual excesses favor the appearance of hemorrhoids.

Æsculus.—Large, purple, painful piles, like ground nuts, with itching and burning; dryness, heat, and severe, pricking pain in the rectum; constant aching pain in the back; stools hard and dry; accompanied by protrusion of the rectum.

Nux Vom.—Blind or bleeding piles, from abuse of stimulants, use of highly spiced foods, or sedentary habits; bleeding, burning and protrusion of piles; weight in abdomen; pain in small of back; constipation.

Sulphur.—Blind or bleeding piles, with stinging, burning, and soreness about the anus; protrusion of the rectum; itching and straining, after blood-streaked stools. Can be used following *Nux*, or in alternation, *i. e.*, *Nux* in the morning, *Sulph.* at night.

Collinsonia.—Old, obstinate, blind, or bleeding piles, with a feeling in the rectum as if sand or sticks had lodged there; severe, sticking pains; chronic constipation. Stools lumpy and light colored.

Hamamelis.—Profuse bleeding piles; burning, itching, rawness, and soreness of anus; discharges of dark blood; weakness and pain in back.

Aloes.—Piles, with flow of hot, blackish blood; constant bearing down in the rectum; protrusion of piles which are hot and tender, better from the application of cold water. A dose of the indicated remedy morning and night.

Open air exercise is desirable; avoid the use of coffee, spices, alcohol, tobacco, highly seasoned or rich food, and over-eating; eat vegetables and fruits; drink plenty of water; take cold baths, and sleep on a firm mattress; mental and physical excesses must be avoided; be prompt in attending to nature's calls.

Suppositories of cocoa butter, intended for insertion in the rectum where they slowly dissolve and lubricate and mediate the surface, can be obtained from large pharmacies, especially Boericke & Tafel, Philadelphia, or Otis Clapp & Son, Boston. These suppositories contain hamamelis, æsculus, aloes, hydrastis, or collinsonia, and are to be selected in accordance with the indications given under these remedies. Hydrastis is to be chosen when there is great relaxation of the mucous membrane of the rectum, and copious mucous secretion. A suppository may be inserted at night and in the morning, also after each stool.

Diseases of the Organs of Circulation.

Inflammation of the Membranes of the Heart.

SIMPLE endocarditis or inflammation of the lining membrane of the heart is always associated with some other affection, chiefly with rheumatism. Pain in the region of the fifth rib, sometimes extending down the left arm, a feeling as if the heart were being squeezed, oppressed breathing and palpitation are the commonest symptoms, and when the inflammation is of a malignant form they are all much more pronounced, with increase of temperature, and many symptoms like those accompanying typhoid fever. It is a difficult disease to diagnose, and a layman can only go by the general symptoms.

Pericarditis, or inflammation of the membrane covering the heart, has symptoms similar to those just given, and though the pain is very distressing in some instances, it is often felt more as a sense of uneasiness or oppression. In pericarditis, with secretion of a serous, watery fluid there may be chill, fever, pain, rapid breathing, nausea and vomiting, or sometimes in children, no early local symptoms, but, after a week or two of failing health, slight fever, shortness of breath and increasing pallor, fluid will be found to be present. There is then bulging of the chest, rapid, weak pulse; a dusky, anxious countenance; difficult breathing, and later, if pus forms, there will be erratic chills, sudden rise in temperature; cold sweating; rapid,

feeble pulse; diarrhœa; great prostration, and muttering delirium. The physical signs in these diseases are given on pages 314 and 315. Both endocarditis and pericarditis have a chronic, as well as an acute form. If a remedy is well selected in accordance with the majority of the symptoms present, it will act effectually whether the prescriber is able to say whether the case is one of endocarditis or pericarditis.

Aconite.—Acute cases, especially when complicating acute rheumatism; there may or may not be fever; great anxiety; restlessness; pain about the heart extending into left arm, and if rheumatism is present, pain and swelling of the joints.

Spigelia.—Pain and violent action of the heart are its chief characteristics; violent palpitation; severe stitching or stabbing pains; great oppression, the least motion almost producing suffocation; irregular pulse; no effusion.

Veratrum Vir.—Very violent, forcible action of the heart in full blooded, non-rheumatic patients, with full, bounding, but not necessarily a quick pulse.

Colchicum.—Acute rheumatism where there is sudden shifting of the disease to the heart, with severe, tearing pains in the heart; thread-like pulse, small and rapid; great oppression, and difficult breathing.

Bryonia.—Pericarditis complicating pleurisy or pneumonia, and in rheumatic endocarditis with inflammation of the valves causing valvular murmurs; intense headache in forehead or back of head, worse on the slightest motion.

Arsenicum.—In pericarditis, with effusion of fluid; restlessness and anxiety; suffocative attacks; violent and irregular palpitation; cold surface; thirst; fear of death; also in endocarditis when the case is serious, with the above symptoms, and great prostration.

Also *Digitalis* in the later stages of inflammation, with feeble, irregular, fluttering, intermittent or very slow pulse, much worse on changing position; feeling as if the heart stood still; lips blue; great anxiety, but no restlessness. *Belladonna* in the early stage with great congestion; flushed face; bounding pulse; throbbing arteries in the neck, especially in children.

Rest and quiet in bed should be enjoined; the use of flannel blankets instead of cotton sheets; or a light cotton jacket or flannel shirt; a light, nutritious diet without tea or coffee; no stimulants unless heart's action is feeble, then whiskey, brandy or strychnine, 1-100 of a grain; hot, *light* compresses placed above flannel over the heart, an occasional warm bath, temperature 100°; do not let the patient make any exertion.

Hypertrophy and Dilatation of the Heart.

HYPERTROPHY is an enlargement of the heart by actual increase of the muscular structure causing thickening of the walls of the heart. Dilatation consists of an increase in the size of one or more of the cavities of the heart, with either thickening or thinning of its walls. Both affections are common, and often co-exist. Any condition which prevents the heart from doing its work is a cause of enlargement, as over-exertion, making the heart work too hard; over-excitement; excesses in food or drink; sexual excesses; diseases of the valves; weakening of the heart by poor nutrition, infectious diseases, etc. In hypertrophy, the weight of the heart may be increased from the normal, about nine ounces in men and eight ounces in women, to even forty or fifty ounces, but rarely above twenty ounces.

The symptoms and physical signs are given in the larger section on diseases of the heart, earlier in the book. Attention is called to the fact that the following remedies should be consulted in cases where it is known that there is *valvular* disease of the heart, that is, where the valves do not close properly.

Aconite.—Hypertrophy of the heart with acute attacks of violent palpitation, with great anxiety and restlessness; pulse hard and strong; constriction of the chest, difficult breathing.

Digitalis, 1 x.—Heart's action weak; pulse small, weak, irregular and intermittent; feeling of anxiety about the heart; oppressed breathing as if there was a "want of air"; faint, sinking feeling in the stomach; especially valuable in bad cases where the valves are affected, and there are dropsical symptoms. Five drops several times daily. *Strophanthus* may be used in its place when digitalis does not give satisfactory results, or where it disturbs digestion.

Cactus.—Constriction of the heart as if bound by an iron hand; palpitation of the heart day and night, worse when waking, and when lying on left side, brought on by any excitement; sometimes acute stitching or shooting pains.

Arsenicum Iod.—Suffocative attacks on slight exertion; pain about the heart; weak heart action; rapid, irregular pulse; general weakness, prostration, and restlessness; nervous irritability; especially in chronic cases, with disease of the arteries.

Also *Arnica* in cases due to over-strain and over-fatigue. *Rhus tox.* in hypertrophy of the heart, without valvular disease; in rheumatic subjects who have over-exerted themselves. A dose of the indicated remedy every half hour to three or four hours.

The rest treatment is very desirable in these cases, and at least the avoidance of all excitement and worry; no tea, coffee or alcohol, rich or fried foods, or effervescing drinks; avoid an excess of fat,

sugar or starch in the diet; eggs, milk, fish, rare beefsteak, chops, well cooked fruit and the lighter vegetables are allowable; do not make any quick movements, as to catch a train; retire early; rest before and after meals; do not over-eat; quiet walking is the best exercise; no active games are permitted; fresh air is essential; keep the bowels and skin active.

The Bad Nauheim or Schott method of treatment is highly recommended.

Palpitation.—Weak Heart.—*Anemia*.

MANY times in connection with indigestion, convalescence from long sickness, working or studying too hard, and getting run down, palpitation of the heart or irritable heart will be an annoying condition when there is no change whatever in the heart's structure. At puberty, with impoverished blood, and at the change of life the same condition may be present. Tobacco, alcohol, sexual excesses, and excitement are frequent causes of palpitation. While the treatment is largely hygienic, remedies will greatly aid in restoring the normal tone of the system.

Ferrum.—Bloodless subjects; palpitation, with feeling of oppression about the heart; full, soft pulse; frequent flushings of the face.

Nux Vom.—Palpitation from indigestion; worse after eating; from highly seasoned foods, tea, coffee, tobacco and alcoholic liquors; sedentary habits; too much study or too close application to business. Consult the symptoms under "*Dyspepsia*."

Glonoine.—Violent palpitation or fluttering; pulsation felt over the entire body; from working before a furnace or being out in the sun.

Also *Aconite* when palpitation is caused by fright or shock, with anguish and anxiety. *Moschus*. Hysterical palpitation. *Ignatia*. Palpitation from grief or suppressed emotion; melancholy; excessive tea-drinking. *China*. After long illness, exhausting diarrhœa or monthly flow; much flatulence. *Spigelia*. Violent, nervous palpitation, with irregular, tremulous action of the heart; oppressed breathing, and sharp, shooting pains. *Coffea*. After great joy or other excitement; sleeplessness. A dose of the indicated remedy every fifteen minutes to two or three hours.

Neuralgia of the Heart.—*Angina Pectoris*.

BREAST-PANG is a familiar name for this affection which is characterized by paroxysms of intense pain in the heart, under the breast bone, to the left and usually extending into the left shoulder and down the left arm. Frequently angina is associated with some organic disease of the heart or arteries, but often nothing of the kind

can be found. True angina occurs more often in men than in women, and after the age of forty. The paroxysms seem to be excited by cold, violent exertion, mental excitement, indigestion, the excessive use of tobacco, and last from a few seconds to two or three minutes or even longer. The pain is excruciating, and accompanied by a horrible sense of suffocation; the face is pale, cold, and clammy, the expression one of agony and terror; the pulse varies, and may be feeble and irregular, and death may ensue or the attack pass off with belching of gas or vomiting. Attacks simulating true angina occur in hysterical persons, but the pain is less intense, more diffused, and lasts longer.

Aconite, 1 x.—Attacks following exposure to cold, with intense anxiety, coldness, pain at the heart radiating in every direction, with numbness and tingling.

Arsenicum, 3 x.—When the disease is of purely nervous origin, with debility and prostration, severe suffocative attacks; feeble and irregular pulse. A dose three times a day between the paroxysms.

Spigelia, 2 x.—Violent palpitation; severe stabbing stitches in the region of the heart at every beat; irregular pulse; tendency to faint.

Cactus, 2 x.—Sensation of great constriction, as of an iron band about the heart; irregular action of the heart; palpitation; pain in heart shooting down left arm to the finger tips.

Amyl nitrite perles, containing three to five drops each can be obtained at any large pharmacy, and one may be crushed in one's handkerchief, and the vapor inhaled to relieve the pain, etc., of a severe attack, or the inhalation of oxygen will give relief. In mild attacks frequent doses of the indicated remedy may be given, and its use continued three or four times a day for weeks at a time to improve the constitutional condition. The general health must be improved by all hygienic and dietetic measures. The spinal ice bag applied to the middle of the back for forty minutes, once a day, has proved curative; electricity is beneficial. During an attack the clothing should be loosened, and hot fomentations applied over the heart.

Diseases of the Genito-Urinary Organs.—*Syphilis.*

Inflammation of the Bladder.—*Cystitis.*

CYSTITIS may be either acute or chronic, and, when chronic, usually occurs quite independently of any acute attack, thus differing from other diseases. The cause is infection by a special germ, but certain agencies favor its development, such as exposure to cold or wet, retention of the urine, injuries to the bladder, certain irritating

drugs, inflammation of nearby parts, foreign bodies in the bladder, etc., and in women in chronic cases, pressure from a displaced uterus.

“Pain, pus and frequency” are called the three leading symptoms of acute cystitis. This disease is described at length elsewhere in this book, so it may be said briefly that an acute attack may be preceded by chills and fever; that the pain is a constant dull ache or sharp, agonizing pain in the region of the bladder; that pus soon appears in the urine, and that there is frequent urging to pass water, which does not flow freely but only drop by drop.

In chronic cases the pain and urging are not so severe, but still there is frequent and difficult urination for weeks or months, with headache, backache, legache, debility, and loss of flesh.

Aconite.—Chilliness and then much fever; dry, hot skin; full pulse; thirst and restlessness; constant desire to urinate; urine hot, dry, scanty.

Cantharis.—*Burning heat* in bladder; *burning and cutting* pains, so severe that the patient screams aloud; constant desire to urinate, with almost ineffectual straining; urine passes in burning drops.

Terebinthina.—Much irritability of the bladder not relieved by cantharis; bloody urine passed drop by drop; sensitiveness over the region of the bladder; slimy, bloody sediment to urine.

Belladonna.—Region of bladder very sensitive; urine hot and red; involuntary dribbling of urine; great nervous irritability.

Apis.—Especially useful in inflammation of the bladder following the use of cantharides, camphor, or other drugs; urine pale straw color, or scanty and red, with brick-dust sediment; pain and burning before and after passing water; much straining.

Mecurius Cor.—Especially in gonorrheal cases or where there is much straining in the rectum as well as in the bladder; sudden, irresistible desire to urinate, and perspiration while passing water; scanty, bloody urine containing white shreds, or dark, flesh-like pieces of mucus.

Chimaphilla.—Useful in both acute and chronic cases, with high-colored, scanty, offensive, turbid urine, containing ropy or bloody mucus; much mucous sediment; great straining before and after urinating, difficulty in beginning to urinate; constipation.

Also *Pulsatilla*, especially in chronic cases in women having catarrhal troubles; frequent, ineffectual urging, with cutting pain and urging; slimy sediment; cystitis after exposure to cold. *Cannabis sativa*. Gonorrheal cystitis with urging every few minutes, and burning and straining worse after urinating; the whole length of the urinary passage burns and smarts. *Boracic acid*. Five grain doses three or

four times a day in chronic cases, where there is great desire to urinate, and can not pass a drop, or frequent urination at night as well as in day time, with much smarting afterward. *Nux vom.* Especially in cases occurring in those of sedentary habits, who have indigestion and constipation; painful, ineffectual urging to urinate; urine passes in drops, with tearing pain in the passage; urine pale, and later thick, whitish, or may be reddish, with sediment like brick-dust. A dose of the indicated remedy every hour in acute, and every three hours in chronic cases.

Absolute rest in bed is most desirable and essential, also the free use (three pints or more a day) of distilled or pure spring water, and a glassful of Vichy before each meal; hot sitz baths; hot fomentations over the bladder; washing out of the bladder in chronic cases; a largely milk diet; the avoidance of tea, coffee, alcohol, salty and spiced food, pork, lobster, cheese, beans, fried foods, pastry, and acid fruit.

Sufferers from chronic cystitis should take two to four warm tub baths weekly, besides the daily warm sponge bath, and should wear a flannel band about the abdomen. In women, diseases of the uterus and ovaries must receive proper treatment; vaginal injections of boracic acid and hot water, a dram to the quart, may be taken every other day. A good physician should be consulted so that local treatment of the bladder may be instituted. The bowels must be kept open. Cod liver oil should be taken when there is much debility and loss of flesh.

Retention of Urine and Strangury.

DR. E. L. KEYES, consulting surgeon to Bellevue Hospital, New York, states that, in his opinion, 95 per cent. of all cases of retention of urine are due to stricture of the urethra (the passage from the bladder through which urine is voided), to contraction of the bladder, or to enlargement of the male gland called the prostate. The effect of retention of urine is congestion of the bladder in its straining efforts to empty itself, and as this condition increases and extends, congestion of the kidneys also, making them extremely susceptible to infection. The treatment must be directed chiefly to removing the cause.

Strangury is the passing of urine drop by drop, with much urging and straining, and may be due to inflammation of the urinary organs or passages, or to obstruction.

Arnica.—Retention of urine from exertion; urine retained, with aching and pressing in bladder; constant ineffectual desire to pass water, or urging, with involuntary dropping of urine; urine dark, scanty, with brick-dust sediment; after wounds.

Belladonna.—Retention of urine, which passes only drop by drop; difficult, scanty urination, with urging pain, and heat along the urethra; paralysis of the bladder muscles.

Hyoscyamus.—Paralysis of the bladder; frequent, scanty, difficult, or involuntary urination; retention of urine.

Veratrum Alb.—Urine not secreted, or if secreted is only partially evacuated, with pain and burning along the urethra; greenish urine.

Consult the remedies given under "Cystitis," especially *Cantharis*, which is a very valuable agent in these cases, and *Aconite* in suppression or retention from exposure to cold. Also *Camphor*. Urine passed drop by drop, with great urging; retention or slow emission of red, thick urine having a musty odor; inflammation caused by the use of cantharides, turpentine, or other drug cold extremities. A dose of the indicated remedy every fifteen minutes to one hour.

Refer to the general directions in the section on 'Cystitis.' Hot baths and applications over the bladder, especially with flannels wrung out in very hot water and a few drops of turpentine sprinkled on them, are indicated. The urine must be withdrawn by catheter if it cannot be passed naturally. The unskilful or careless use of the catheter or any other instrument is a fruitful cause of wounds of the mucous membrane, and subsequent infection by pus germs.

Suppression of Urine.

IN suppression of urine, no urine is made by the kidneys. This is a serious symptom and may occur in old people, and in the course of other diseases at almost any age. The remedies mentioned under retention of urine may be consulted, but in all cases the cause of the condition, and all the associated symptoms must be taken into consideration. In suppression from long continued exposure to cold *Aconite* should be given, especially with pressure in the bladder or stitches in the region of the kidneys. *Arsenicum* for suppression in the course of diseases of the kidneys or heart, with poisoning of the whole system from the absorption of waste products, dropsy, and great prostration and exhaustion. *Stramonium*. Suppression during high fever and delirium, neither urine nor fecal matter from the bowels is passed. *Pulsatilla*. Suppression in little girls or in women with uterine disorders, with frequent, ineffectual urging to urinate and cutting pains.

Hot baths, hot applications over the kidneys and bladder, and hot drinks are recommended; give the sufferer large quantities of distilled water or Vichy or Poland water, and injections of hot salt solution into the bowels.

Incontinence of Urine.—*Enuresis*.

ADULTS as well as children may be subject to this annoyance. Of the causes in children mention has been made under "Wetting the

Bed." In adults incontinence of urine may be due to piles, cracks in the rectum or worms; defective eyesight; paralysis of the bladder from repeated neglect to empty it when full; weakness of the bladder from wounds or uterine troubles, and frequently, great nervousness or a highly neurotic temperament; sexual excesses or unnatural practices may cause irritability of the bladder. For treatment consult the action just referred to.

Blood in the Urine.—*Hematuria.*

WOUNDS, congestion of the kidneys, Bright's disease, stone in the bladder, smallpox, scurvy, ulcers, and sometimes malaria account for blood in the urine. Blood in the urine may be detected by adding to the urine a drop or two of tincture of guaiacum and two drops of ozonic ether; at the junction of the two fluids a blue line forms, which becomes diffused through the ether. The cause must always be sought, and remedied when possible. Blood in the urine is only a symptom, and all the symptoms and the general condition must be taken into account in selecting a remedy.

Aconite.—Blood in the urine especially in inflammation of the bladder and urethra; scanty, dark, scalding hot urine, passed drop by drop.

Cantharis.—Violent, cutting, pressing, crampy pains in the bladder, extending into the kidneys and urethra; urine passed drop by drop, with burning pain before, during and after urination; urine red or dark colored as if mixed with blood.

Nux Vom.—Blood in the urine after alcoholic excesses, highly seasoned foods, or strong medicines; from indigestion with constipation; suppression of monthly flow; full feeling with pressure in the abdomen, loins, and region of the kidneys.

Terebinthina.—One of the best remedies when this symptom is present; blood mixed with urine, forming a dirty, reddish-brown or blackish fluid, or a coffee-ground-like sediment; burning, drawing pains in the kidneys; pressure in the bladder, extending up into the kidneys when sitting, disappearing when walking about; pressing and straining in the bladder when sitting before urination, passing off when walking; burning in the bladder, worse while passing water.

Also *Arnica* after injuries to the urinary organs. *Arsenicum.* Very painful urination, scanty secretion, burning pain in the urinary organs; bladder seems paralyzed; great anguish and restlessness; bloody urine especially in infectious and septic diseases.

Gravel or Stone.

THE composition of the different varieties of urinary deposits is described at length elsewhere in this book. Gravel or stone may form in the kidneys or bladder, and in passing through the tubes

from the kidneys to the bladder, or from the bladder to its outlet may cause severe pain and tenderness. When the stone is from the kidneys, the paroxysm of pain is called renal colic; it radiates downward into the groin or bladder, and along the inner side of the thighs. The pain may be so severe as to cause nausea and vomiting; sweat; rapid, feeble pulse and even fainting. There is frequent and painful urination, from reflex irritation. When there is stone in the bladder which passes into the urethra there is frequent urination, with pain and sudden stoppage of the stream of urine. The directly curative treatment of gravel or stone is surgical, and should not be postponed. Remedies will, of course, be resorted to for the alleviation of pain and other symptoms, and especially for the constitutional condition favoring the formation of stone.

Berberis.—Renal colic with sharp, stitching pains, with red sediment in the urine which is dark red or yellow in color, becoming turbid; burning all along the urinary passages; severe pain in the hip.

Lycopodium.—Dull pain, better on passing urine; renal colic, especially of the right side; scanty, high colored urine, smelling like ammonia, with red, sandy deposit, sometimes whitish; itching in the urethra before and after passing urine.

Arsenicum.—Pain in the kidneys with the occasional passage of gravel; scanty urine passed with difficulty; suppression or retention of urine; sometimes blood in the urine.

Sarsaparilla.—Urine passed with difficulty, and containing mucus, pus, gravel and small stones, urine slimy, flaky; clayey or sandy.

Pareira Brava.—Four or five drops of the tincture at the first warning of the attack of renal colic, especially if the attack begins with pain in the genitals, followed by straining in the bladder and rectum; severe pains in the groins extending down the thighs; paroxysms occurring usually from 3 to 6 A. M.; urine smells of ammonia, and is passed with difficulty drop by drop.

Also *Cannabis sat.* Tearing, jerking, stitch-like pains along the urethra, and feeling of soreness; burning while urinating, but especially afterward. *Belladonna.* Spasmodic, cramp-like pains; high-colored urine, with brick-dust sediment; pains come on suddenly and radiate in different directions. *Nux vom.* Renal colic with intense backache, and pains extending into the genital organs, and down the leg. A dose of the indicated remedy every fifteen minutes during an attack; three times a day between paroxysms.

While one of these remedies may give relief in mild cases during an attack, it is chiefly toward correcting the constitutional condition favoring the formation of stone, that they are to be directed. A few whiffs of chloroform or ether will relieve the agonizing pain of

a severe paroxysm; hot baths are helpful; a hypodermic of morphine, $\frac{1}{8}$ grain, with atropine sulph., 1-20, or suppositories of opium and belladonna may be used.

Free drinking of rain water or distilled water is the best preventive of the formation of gravel or stone; meat should be eaten sparingly; green vegetables, salads and fruits freely; milk is an excellent food, also fish; avoid alcohol, spices, tea, rhubarb, onions, tomatoes, spinach and sorrel. Exercise out of doors is recommended, but must not be excessive; the bowels and pores of the skin must be kept open.

Diabetes Mellitus.

DIABETES may occur apparently alone or associated with affections of the liver, pancreas, nervous system or lungs. Men are attacked about three times as often as women, and the disease is rare under thirty years of age. It is characterized by a copious secretion of urine loaded with sugar, and by a progressive loss of flesh and strength.

The early symptoms are frequent, and excessive urination, great thirst and emaciation, later dry, harsh skin; itching; voracious appetite; constipation; normal or subnormal temperature; impairment of the sexual powers and the eyesight, and there may be drenching sweats; the amount of the urine increases to from four to forty pints. Acute cases last from eight to ten weeks; chronic cases from one to five years, but may continue ten or fifteen. Persons engaged in literary occupations inducing mental fatigue and sedentary habits and members of the "well-to-do" class, or those suffering from gout, syphilis, malaria, and "high living" are especially subject to diabetes.

Phosphoric Acid, 2 x.—This remedy is of the first importance in the treatment, especially in the early stages, of cases of nervous origin resulting from overwork, worry or sexual excesses; rapid loss of flesh; emaciation; much sugar in the urine.

Uranium Nitrate.—Best adapted to cases with marked failure of the digestive functions from the beginning.

Arsenicum.—Great thirst; restlessness; anxiety; debility; oppressed breathing; rapid loss of flesh and strength, waxy look to the skin; and may be eruptions, swelling of the legs, and in the advanced stage, diarrhœa, carbuncles and gangrene; all symptoms worse at night.

Plumbum Iod.—Diabetes especially in gouty individuals, with crystals of uric acid in the urine, and small amounts of albumin; low spirits, anguish and melancholy; dimness of vision; mouth dry; tongue dry and cracked; some fever; skin dry; gangrene.

Also *Nux vom.* for indigestion, with much irritability. *Lactic acid.* Copious and free urination of light colored urine containing sugar; voracious appetite; thirst; nausea; constipation; food sours in the stomach, and much burning, hot gas is raised; skin harsh and dry. *Podophyllum.* Light-colored stools with fullness and soreness in the region of the liver; tongue heavily coated white; head heavy and aches in the morning; blurring of vision. *Lycopodium.* Flatulency; full feeling after eating; pressure over the liver; constipation; uric acid crystals in the urine. *Creosote.* Diabetes complicated by consumption, with cough, expectoration, flatulency, and rapid emaciation.

A dose of the indicated remedy every two or three hours in acute cases; twice or three times a day in chronic. Alkaline waters, such as Vichy, Carlsbad and Marienbad may be used freely, also rain water and distilled water. Diabetics may eat eggs, cheese, shell fish, salt and fresh fish; fowl and game, ham, bacon, mutton, sweetbreads, kidneys; salads; olive oil, butter, cream, cod liver oil, bone marrow; sauerkraut, lettuce, sorrel, mushrooms, watercress, spinach, chicory, celery, cucumbers, tomatoes, lemons, sour cherries, gooseberries, strawberries, oranges, and nuts except chestnuts; gluten bread, bran bread, rusk, and almond bread; glycerin or saccharine should be used to sweeten tea or coffee; no alcoholic beverages; meat soups are allowable; a milk diet is beneficial in some cases.

Daily bathing, fresh air, sunshine, freedom from care and worry, and the wearing of flannel all the year round are recommended. Directions for the detection of sugar in the urine are given on page 373.

Acute Bright's Disease.—*Acute Nephritis.*

THIS is an acute inflammation of the kidneys frequently brought on by exposure to cold and wet, especially if after the use of alcoholic beverages, or occurring in connection with scarlet fever or other infectious diseases, pregnancy, skin diseases, or may be caused by many vegetable and mineral poisons. Sometimes no cause is discoverable. Acute cases last from a few days to five or six weeks; the longer the duration of the case the worse the outlook; suppression of the urine is the most unfavorable symptom.

Generally the onset of this disease is sudden, with slight swelling or puffiness of the face, but this may be preceded by chilliness, fever with nausea, and persistent vomiting; dull pain over the kidneys extending downward; frequent desire to urinate, and diarrhoea; much debility. As the disease progresses there is full, quick pulse; twitching of the muscles; drowsiness, and may be much dropsy.

Aconite.—In the early stages in cases resulting from exposure to cold and damp, with high temperature, full, rapid pulse, dry skin, great restlessness, dark, scanty urine.

Belladonna.—In the early stages, especially in children, with flushed face, throbbing arteries in the neck, bounding pulse; hot, but moist skin which steams when the bedclothes are raised.

Apis.—Much dropsy, with no thirst; whitish, waxen, transparent look to the skin; scanty urination; albumen in the urine; more especially when this condition follows scarlatina or accompanies pregnancy.

Cantharis.—Burning pain in the loins; severe vomiting; mental stupor; constant desire to urinate but passes only a few drops of turbid, bloody urine; suppression of urine.

Terebinthina.—Acute cases resulting from infectious diseases, or exposure to cold; burning, drawing pains in the region of the kidneys; scanty, bloody urine, passed drop by drop; general dropsy; suppression of urine.

Also *Mercurius cor.* when, with scanty urine containing albumen and much irritability of the bladder, there is diarrhoea with much colic and straining; difficult breathing, and puffiness of the face and feet. *Phosphorus* when there is consumption of the lungs, or heart disease, or ulceration of the bones, with wasting and nervous exhaustion.

A dose of the indicated remedy every three hours. Rest in bed, quiet and warmth are essential in the general treatment; flannel blankets may be substituted for cotton sheets, and cotton flannel or flannelette nightdresses used; milk, buttermilk and gruels are the best foods, with koumyss, rice, vegetable soups without onions, grape juice; distilled or carbonated waters in abundance, lemonade, especially hot. A hot pack for an hour, consisting of a blanket wrung out in hot water and wrapped round the patient, with a dry blanket and a rubber sheet on the outside, may be given every other day, or a hot tub bath to increase the activity of the skin.

Chronic Bright's Disease.—*Chronic Nephritis.*

Gout, lead poisoning, chronic alcoholism, and an inherited tendency are the chief causes of one variety of the chronic form; prolonged exposure to wet and cold, pregnancy, scarlatina, acute nephritis, and some authors add malaria. The symptoms resemble those of the acute form, but develop more insidiously, with even greater general debility, headache, indigestion, lassitude, nausea and drowsiness. In the first named variety dropsy is infrequent except toward the last, with failing heart. The quantity of urine may be much increased for quite a long while. It contains a large amount of albumen. The duration of the disease is from one to twenty years. Consult the remedies given under "Acute Bright's Disease," especially *Cantharis* and *Mercurius cor.*

Plumbum.—Loss of appetite; frontal headache, worse from mental application; oppressed breathing, worse at night; swelling of the ankles, dry skin, even after exercise; colicky pains; obstinate constipation; abdomen drawn in; skin pale, rapid emaciation and debility; absorption of the waste matter into the blood, causing a tendency to convulsions.

Phosphoric Acid.—Frequent, profuse, watery or milky urine, depositing a sediment; great debility and loss of flesh; mental exhaustion.

Arsenicum.—Much dropsy; restlessness, thirst, anxiety, restlessness, worse at night, and must lie with the head high; dropsy of the chest, puffiness about the eyes, and swelling of the feet and limbs.

Also *Kali iod.* in syphilitic cases, five to ten grain doses three times a day. *Digitalis* when with dropsy and difficult breathing there is a weak, irregular pulse. A dry, warm climate, and much rest in bed are desirable; a warm tub bath daily, continued for from ten minutes to half an hour; daily inhalations of oxygen gas; small quantities of food, as recommended for acute cases, and at frequent intervals; the securing of free movements of the bowels by the use of saline laxatives. To increase the flow of urine when dropsy is excessive, twenty or thirty drops of *Apocynum cannabinum* may be given every three hours until the desired effect is obtained.

Inflammation of the Urethra.

EXPOSURE to wet and cold and local injuries may cause inflammation of the urethra, but the most common cause is infection by the germ called the gonococcus of Neisser at the time of impure sexual intercourse, the disease resulting is called gonorrhea. This affection is fully described on page 404. The principal symptom following burning heat, tenderness and puffiness at the entrance to the urethra, is a catarrhal discharge soon changing to thick, purulent matter; there are painful and persistent erections, and owing to the swelling of the lining membrane of the urethra, the urine may be passed in spurts or drops, or as a twisted or forked stream. Symptoms appear between the first and fourteenth day after exposure; generally from the third to the seventh. The disease is highly contagious, and when transmitted from a man to a woman causes many and serious diseases of the pelvic organs.

Gelsemium.—Drop doses of the tincture every three hours early in the acute stage; moderate discharge; smarting and burning at the entrance of the urethra, and not much pain.

Cannabis Sativa.—Ssmarting, burning, stinging during urination; constant urging; copious, thin discharge; foreskin swollen and painful, urine passed drop by drop, pains extending into the scrotum, with dragging in the testicles. Drop doses of the tincture.

Cantharis, 2 x.—Extension of the inflammation toward the bladder; passage of blood or bloody urine; inflammation of the bladder. See indications for *Cantharis* under that heading.

Mercurius.—Free greenish and purulent discharges worse at night; dark purplish swelling of the parts; inflammation of the foreskin; thickening of the walls of the urethra so that the stream of urine is much diminished in size; painful erections. Give *Mercurius cor.* instead when, with the above symptoms there is great urging to urinate, burning and scalding.

Also *Aconite* in the very beginning, if inflammation of the urethra is due to exposure to cold and wet. *Arnica* when caused by wounds.

Copaiva.—Gonorrheal inflammation, with constant desire to urinate; painful, bloody urination; profuse, yellow, purulent discharge; painful erections. Capsules containing five minims or drops; one three times a day.

A dose of the indicated remedy every two or three hours, unless otherwise specified. Immersion of the male organ frequently and as long as possible in water as hot as can be borne is recommended in acute inflammation. A five to ten per cent. watery solution of ichthyol makes a satisfactory injection. Treatment by injections is best pursued, however, under the advice and direction of a competent physician, and only such should be consulted. For painful erections, keep the bowels, especially the rectum free; sleep on a hard mattress, with light bed coverings and in a cool room, and use suppositories of opium, one grain and camphor two grains. The diet, especially during an acute attack, should be light and unstimulating; no stimulants, tobacco, or effervescing drinks; avoid tea and coffee; refrain from sexual intercourse; take frequent sponge baths; drink water freely between meals; be very careful not to infect the eyes; a "gonorrhea bag" should be worn with a little cotton in it which should be frequently changed.

Inflammation of the Testicles.—Orchitis.

INFLAMMATION of the testicles may occur in the course of gonorrhea, one or both being involved, and unless inflammation is checked, becoming exceedingly painful and badly swollen.

Aconite.—In the very beginning when there is much congestion of the parts, with general feverishness.

Pulsatilla.—Drawing, stretching pains, from the abdomen, through the spermatic cords, into the testicles; swelling of the testicles, with soreness and tearing pains; swelling of the right side of the scrotum. This remedy is doubly indicated when the above symptoms are associated with those enumerated under "Inflammation of the Urethra."

Clematis.—Follows *Pulsatilla* well, when the testicles are inflamed, swollen and painful, sensitive to touch, and one or both drawn up; interrupted flow of urine, with burning, especially when beginning to urinate.

Hamamelis.—Severe neuralgic pains in the testicles; intense soreness and swelling; pain running down the spermatic cords into the testicles.

A dose of the indicated remedy every two hours. Hot fomentations of hamamelis to the parts will relieve pain, or a tobacco and flaxseed poultice made light and as hot as can be borne. Support the scrotum by a square cloth folded diagonally, and the corners fastened to a waist band; when the swelling has partially subsided, apply ichthyol, ten per cent. in vaseline, or compress the testicle by strapping with straps of adhesive plaster. Avoid constipation, sexual excitement, alcoholic beverages, highly seasoned food, tea, coffee and tobacco. A light diet, and rest in bed are beneficial.

Syphilis.

THIS loathsome disease is described at length on pages 394 to 432. If curable, it is not to be eradicated in a few months. The sufferer owes it to himself and to the community to put himself under the care of a competent and conscientious physician, and scrupulously carry out his instruction. It will very likely be necessary to continue treatment for three years if the sufferer is a man, four years if a woman. No greater crime can be committed than to marry while uncured.

Phytolacca.—In the first stage, with enlargement of the adjacent glands; headache; sore throat; syphilitic rheumatism and bone pains, worse at night and in damp weather; also, after eruptions and ulcerations occur.

Mercurius Sol. or Vivus, 2 x.—For mild cases without much glandular enlargement; syphilitic fever; pains at night; red, flat and scaly eruption especially on the palms of the hands; lining membrane of the throat a darkish-red.

Mercurius Prot, 1 x.—When the glands are badly swollen, and the case proves a stubborn one; falling of the hair; throat very sore, or give *Mercurius bin*, 2 x when, with the above symptoms, the tonsils are badly swollen and very sore.

Mercurius Cor, 3 x.—Rapidly spreading, creeping ulcerations with ragged edges, eating into the tissues; inflammation of the eyes; redness and burning of the mouth and palate, attempting to swallow liquids or solids often causes spasms of the throat; syphilis of internal organs.

It is better not to begin taking any form of mercury until skin eruptions appear.

Kali Iod.—Most useful in the third stage of syphilis, when the poison seems to have soaked into all the tissues, and where ulcerations of the skin and mucous membranes are extensive and extending; scrofulous, debilitated conditions; violent headache, with hard lumps on the head; eruptions on the face, scalp, chest and back that leave scars; foul breath; sore throat; fetid, greenish discharge from nose; ulceration and decay of the bones; gnawing, burning, boring pains worse at night.

Nitric Acid.—A valuable remedy when a case has been so mismanaged as to have been saturated with mercury or potassium; offensive, corroding discharges from ulcers and sores; splinter-like pains; scaly eruptions; deep, bleeding cracks at the corners of the mouth; foul breath; ulcers bleed easily; ulceration of the genitals, of the nostrils and throat.

A dose of the indicated remedy three times a day. Cleanse the sores with a mild antiseptic, as bichloride of mercury 1 to 2,000 or 1 to 3,000, and dust with calomel, aristol or iodoform, or protonuclein (special). As local treatment must be followed up for a long time, and changes made as indicated, the advice of a competent physician is highly desirable. Drink no alcoholic beverages; refrain from sexual intercourse or excitement; do not use tea, coffee, tobacco, spices or rich or indigestible food; take alkaline or sulphur baths; live out of doors as much as possible, and exercise or work in the open air; keep the mouth and teeth clean.

Diseases of Infants and Children.

Red Gum.

IN extreme infancy red gum is due to congestion of the sweat glands from hot weather, an overheated room, or to too many clothes, but may occur later during teething. Small red or white pimples appear on the face, neck or arms, or less frequently over the entire body. Each pimple has a semi-transparent spot in the centre, but no fluid escapes when it is pricked; these pimples have a hard, "shotty" feel, and bleed a little on being scratched.

Antimonium Crud.—Is to be thought of when the child has indigestion, vomits milk after nursing, and refuses to nurse again; tongue coated white; mucous discharge from the bowels.

Borax.—Red eruption on the cheeks and around the skin; sore mouth, with great heat and dryness and blisters.

Chamomilla.—Red rash on cheeks and in the folds of the skin, with sweating; irritability, peevishness; child sleepy but cannot sleep.

Give a dose of the indicated remedy every three or four hours. The principal treatment must be hygienic, with reference to diet, bathing, and fresh air.

Chafing.

To prevent chafing of a baby's skin, keep it clean, but never rub it roughly, or dress the child so that the clothing causes irritation. Never let wet diapers stay on a child, or put on diapers that have been dried without washing after using. Do not use dusting powders to excess, but if the surfaces are abraded anoint with calendula or hamamelis cerate, or plain or carbolized vaseline.

Crying.

IN young children crying is a symptom worth considering, and by no means always indicates that a child is hungry, therefore do not anticipate the feeding-hour, but give a drink of water, and try to discover what other reason there may be for the evident discomfort. Constant crying until exhausted, and after a short nap beginning again indicates pain, especially colic or earache (consult the section on "Colic"), while hoarse crying on awakening after sleep in a child not given to crying may portend croup; a sharp, distressing crying, with cough and effort not to cough, suggests lung trouble, and in brain affections the cry is sudden, sharp, piercing, and paroxysmal.

When no cause is discoverable, and the child seems simply fretful and uneasy, and wants to be carried all the time, give a dose of *Chamomilla* every hour for three or four doses, or *Coffea* when the child is merely very nervous and excitable, and cannot be put to sleep.

Endeavor to discover the cause; it may be only tight or too much clothing; chafing; wet clothes; an ill placed pin; thirst; too much light, noise or excitement, or, in nursing infants, mental or physical disability in the mother, especially indigestion or temper.

Milk Crust.—*Eczema*.

THE most common form of eczema in infants is that known popularly as milk crust, a term properly belonging to eczema of the face, but sufficiently descriptive of the frequent extension to the scalp, the treatment being the same. The first symptoms are redness and itching, then the formation of small pimples which rupture and exude a sticky fluid; this drying, forms a crust, with a raw surface beneath. The same eruption may appear in the folds of the groins or joints, with intolerable itching. Indigestion causes many cases of eczema in

infants. They should never be put to the breast whenever they cry, but be fed at regular intervals; improper food is another cause, also lack of cleanliness and hygienic surroundings; irritating soap or neglect to rinse the soap off.

Rhus Tox.—Eruption on a raw, excoriated surface, exuding a thin, sticky, offensive serum, which forms thick crusts; especially on the face and scalp; burning and itching worse at night.

Graphites.—Moist eruption, with thick crusts on raw, inflamed surfaces, which exude a thick, sticky serum; much soreness, especially behind the ears; itching and redness; symptoms worse from scratching and at night.

Hepar Sulph.—Moist, rather thick, yellowish exudation in fair, plump, or scrofulous children.

Calcareo Carb.—Children of the above type, with eruption covered with thick, greenish-yellow crusts, formed from the gummy, yellowish, pus-like secretion; intense burning, itching; painful cracks in the skin.

Arsenicum.—Burning, itching eruption, painful after scratching; crusts surrounded by an inflamed, painful border; pain and itching, worse at night, and from cold and scratching, but better from warmth; hair falls out; child thirsty. A useful remedy, also, in chronic cases when there are fine, branny scales on a dry, white skin.

Sulphur.—Bad-smelling, purulent oozing forms thick crusts which bleed easily; much itching with burning.

A dose of the indicated remedy every three hours. Consult also the section on "Eczema" in this part of the book. An infant, or small child should be fed regularly in small quantities food that is nourishing and digestible; should be kept scrupulously clean, and be out of doors much of the time in suitable weather; regulate the bowels; do not allow powder to cake on the skin; remove crusts by the application of warm, soft water or with warm olive oil; the latter is an excellent emollient, or carbolized vaseline may be applied, and when inflammation is slight, equal parts of fine starch and oxide of zinc, or buckwheat or rye flour may be dusted on. Itching is an annoying and even distressing symptom in these cases; peroxide of hydrogen, one part to three parts water alleviates this, or one-half to one drachm carbolic acid and an ounce of glycerine to a pint of hot water. Mittens may be tied on a child's hands to prevent scratching.

Teething.—*Disturbances of Dentition.*

Just before the teeth begin to make their appearance there is a noticeable increase of saliva which dribbles from the mouth and is called drooling. The baby rubs the gums, sucks his lips, and con-

stantly moves his jaws, thus indicating the cause of his uneasiness. The gums will be found swollen and cushiony, and hot and tense just before a tooth comes through.

Sometimes there is feverishness, great irritability and crying. There may be stomach and bowel disturbances, inflammation of the middle ear, sometimes catarrh of the respiratory organs, and often nervous symptoms, even convulsions.

Aconite.—Feverishness; heat; redness; pain; restlessness; swollen gums.

Chamomilla.—Fretfulness; child wants to be carried about constantly; nothing pleases; diarrhœa, with loose *green* or *frothy* stools.

Belladonna.—Face red, eyes bright, child excited, nervous; convulsive movements and moaning in sleep; starts up suddenly when waking.

Calcareæ Carb.—A valuable remedy in cases of slow or late dentition, with looseness of the bowels, weakness and emaciation; sour smell; milk disagrees.

Silicea.—Tardy teething in rickety children; teeth seem ready to come through, but do not.

A dose of the indicated remedy every one to three hours. Bathe the child in tepid water twice a day; give pure, moderately cool water to drink often; keep the child out of doors, but not exposed to the wind or direct rays of the sun; if there is diarrhœa, consult the remedies in that section.

Convulsions.—*Fits.*

CONVULSIONS may be due to teething, worms, cold or heat, indigestion, suppressed eruptions, irritation from the accumulation of secretions about the genitals, epilepsy, improper feeding, constipation, fright or serious diseases of the brain. Although the child is apt to be irritable and languid for a few days previous, the condition often goes unnoticed, and the attack comes as a complete surprise. As convulsions in children are always attended by danger, prompt and intelligent treatment is of great importance.

Belladonna.—Face bright red and intensely hot; the child suddenly becomes rigid, stiffens out, and foams at the mouth; between convulsions the child starts and twitches, cries out suddenly or moans incessantly.

Æthusa.—Convulsions in children suffering from summer complaints; spasm begins in the fingers and toes, the former clinched and the latter drawn in; bending of the body backward. *Cuprum* has

much the same symptoms, with rigidity of the jaw, causing the child to bite the spoon when medicine is given; especially indicated when eruptions in fevers disappear suddenly

Nux Vom.—Convulsions from indigestion or excessive ill-temper, or in nursing children when the same conditions exist in the nurse; spasm renewed on slightest touch, jar or motion.

Chamomilla.—Extreme sensitiveness, great irritability; one cheek red, the other pale; restlessness, moaning, and twitching of the muscles of the face; diarrhoea.

Also *China* in convulsions due to worms or intestinal irritation from other causes; *Glonoine*, when brought on by exposure to heat, as the hot sun; *Ignatia* spasms following grief, punishment or suppressed anger; *Opium* after fright, with labored breathing, stupor, and face dark red; *Stramonium*, suppressed eruptions, where the child shrinks from everybody and is frightened, and the room has to be kept dark, as light aggravates the spasms.

Place the child at once in a warm bath of a temperature of about 100 degrees, applying a sponge wrung out in cold water to the head. The bath should last from three or four minutes when the child is much exhausted, to from ten to fifteen minutes in ordinary cases.

After the bath put the child in a warm bed. If the convulsions are due to constipation, give a rectal injection or dose of castor oil; if to swollen gums during teething, have them lanced; if the genitals require attention, do not allow them to be neglected.

Snuffles or Coryza.

INFANTS and young children often take cold easily in cold or damp weather, begin to sneeze and snuffle, with running of mucus from the nose or a stuffed condition, and sometimes feverishness and flushed face. Always treat such condition in the very beginning.

Camphor.—A drop on sugar, repeat every half hour for three doses, when there are signs of having taken cold after getting wet, or after exposure in damp, foggy weather.

Aconite.—Feverishness and sneezing in cold, dry weather, or after exposure to high winds or draughts.

Arsenicum Iod.—Running of mucus from the nose, which reddens the nose and lip; constant sneezing.

Nux Vom.—Nose stuffed up, or one nostril free, the other obstructed; difficult breathing; dryness of the nose, then running from the nose, followed by stuffiness, and so on; constipation.

Belladonna.—Considerable feverishness and flushing of the face, with sore throat which is bright red.

A dose of the indicated remedy every hour. Accustom the child to being out of doors, but put a veil over the face of young children in very cold, windy weather, or when there is much dust. When the child has inherited syphilis, *Mercurius sol.* twice a day will be helpful.

Mumps.—*Parotiditis.*

FROM two to ten years of age children are most liable to contract this disease, which is a contagious, acute inflammation of the glands secreting the saliva, lasting from five to seven days in mild cases, in others, two weeks with swelling of the glands elsewhere in the body. The symptoms are well described on page 256. Mumps generally pursue a mild course, but may be complicated by swelling of the breasts in the female, and of the testicles in the male; the ears, kidneys, and brain are also sometimes involved, but this is rare.

Belladonna.—Bright red, shining swelling, especially of the gland under the jaw on the right side; throbbing headache, red face and eyes; shooting, cutting pains.

Mercurius Sol.—Parts swollen but pale and the left side affected; little fever; considerable pain; alternate heat and chills; nightly thirst; night sweats; mouth waters; breath offensive; tongue flabby and shows the marks of the teeth. This remedy follows belladonna well.

Rhus Tox.—Dark red swelling, with much puffiness of surrounding tissues.

Pulsatilla.—This is the first remedy to be thought of when inflammation of the breasts or testicles occurs.

Also in the very beginning when there is much feverishness and restlessness a few doses of *Aconite* may be given, and later when it seems as if matter might form, with sticking, splinter-like pains, give *Hepar sulph.* A dose of the indicated remedy every three hours.

It is best even in mild cases to keep the patient in his room, and in bed if the attack is severe. Broths, milk, egg nog, and other light and easily swallowed foods may be given. Belladonna ointment may be applied externally, or biniodide of mercury, five grains to one ounce of lard or vaseline. Hot compresses or cold applications may prove soothing.

A bandage should be applied to support the testicles or the breasts if they become swollen.

Enlarged Tonsils.—*Chronic Tonsillitis.*

ENLARGEMENT of the tonsils in children should never be neglected, as the condition tends to become chronic; causes breathing through the mouth which is very harmful to the general health, and makes a child susceptible to catarrhal affections of the respiratory organs and to serious diseases such as diphtheria.

Baryta Carb.—Inflammation and ulceration of the tonsils upon the slightest exposure to cold or damp weather; the glands of the neck under the jaw and behind the ears often enlarged and hard. *Baryta iod.* instead in long standing cases, where there is excessive hardness and constant swelling. These remedies are especially useful for children nearing puberty.

Calcareo Iod.—Enlarged tonsils, especially in scrofulous children; tonsils full of little holes or pockets containing cheesy matter.

Mecurius Bin.—Enlarged tonsils, with chronic nasal catarrh, greenish-yellow mucus dropping back into the throat.

A dose of the indicated remedy three times a day. The tonsils should be cut out if the persistent use of other measures for one or two months is followed by no improvement. Build up the general health with malt or iron preparations, the hypophosphites, and especially cod liver oil; daily baths of moderately cold salt water, with brisk friction of the entire body; exercise out of doors, fresh air and sunshine in the house; paint the tonsils daily with tincture of iodine one part to four parts water.

Croup.

Membranous Croup.—*Membranous Laryngitis.*

IN a large proportion of these cases the same germ is found which is characteristic of diphtheria, still there are cases in which it is absent, therefore membranous croup is a name answering for all as diphtheritic croup would not.

This disease rarely occurs after seven years of age, and usually not before a child is a year old; when not due to the diphtheria germ it is not contagious. Cold, damp winds favor its development. A hoarse croupy cough generally precedes the formation of any membrane, or simply hoarseness or huskiness. The cough occurs at night and has a ringing, brassy sound; there is wheezing, whistling respiration, and great difficulty and distress in breathing as soon as the membrane forms; the child's face turns red or purple, and he clutches at his throat while trying to cough, but the paroxysms fortunately do not last long except in bad cases. Croup ordinarily runs its course in from five to ten days, but may terminate fatally in from twenty-four to forty-eight hours.

Aconite.—In the early stages, with hoarseness and huskiness of the voice, or hard, ringing cough. It relieves congestion in the throat, and may prevent the formation of membrane, or at least lessen its amount. A dose every half hour, and it may be given in alternation with one of the other remedies.

Kali Bich. 1 x.—Gradual and insidious onset, at first only slight difficulty in breathing, which increases; hoarse voice, constant

paroxysmal cough; tonsils and throat red and swollen; membrane forms; tough, stringy mucus in the mouth; offensive breath. Five grains in a third of a glass of water. A teaspoonful every fifteen minutes to one hour.

Iodine.—In the early stage when aconite has only partially relieved; hot, dry skin; very dry, violent cough in paroxysms; great pain in the throat; sawing respiration; hoarseness, and partial or complete loss of voice. Give as above.

Hepar Sulph.—Air breathed in with difficulty, but expelled easily; loose cough, but no expectoration; stitching pains from ear to ear, and feeling as if something was in the throat; all symptoms worse after midnight or towards morning. Give as above.

Tartar Emet.—Bad cases, child almost choked by the membrane which is tough and firm. One-half grain of the crude drug in half a glass of water. A teaspoonful every fifteen minutes until pieces of membrane are coughed up, or the cough begins to grow moist and loose.

Ipecac.—Convulsive evening cough; free secretion of mucus in the bronchial tubes, threatening suffocation. A drop of the tincture every half hour to every one or two hours.

In the treatment of croup moist air is essential. Cover the patient's bed with a tent made of a sheet and convey the steam from a tea-kettle or steam atomizer within this confined space. Pans of hot water may be kept on a stove or on radiators, and steam obtained by putting hot flatirons in the water if there is not fire enough. Lime may be slacked in the room, and cloths wrung out in boiling water hung up. Hot cloths applied to the throat are helpful. Bichromate of potash, one grain to the ounce, may be used to spray the throat. In all cases of membranous croup, the injection of 1000 units of diphtheria antitoxin is strongly recommended, as there is at least a strong possibility of the diphtheria bacillus being present.

Spasmodic Croup.—*Laryngismus Stridulus.*

MANY know this form of croup under the name "False Croup." It is simply a nervous spasm of the throat, generally occurring in children under two years of age who are poorly nourished, have rickets or have some bowel or stomach trouble. The attack comes on suddenly and often very violently; the child holds his breath, grows livid in the face, and distress in extreme suffocation may even occur or the attack end in convulsions. Fortunately the disease is not nearly so dangerous as it looks. Remember that the general treatment must be inaugurated at once, and is as important as any drugs.

Aconite.—Attack excited by cold, dry air; spasm of the larynx (windpipe) and suffocative breathing; short, dry, hard, metallic cough. A dose every fifteen minutes during the attack, then every one or two hours.

Spongia.—Rough, crowing, barking cough; wheezing, whistling respiration; great difficulty in breathing. May be alternated with aconite.

Sambucus.—Sudden waking after midnight, child sits up in bed, turns blue, gasps for breath; quick, wheezing respiration, suffocative cough, with crying. Give as above.

Belladonna.—Child very nervous and excited; even a sip of water causes spasm; skin hot and dry, and throat painfully dry. Give as above.

A weak solution of *Chlorine* in water, so weak that the odor is just perceptible, is a most efficient agent. A teaspoonful every fifteen minutes or at long intervals.

Dash cold water on the child's chest, or immerse the child for a few minutes in a warm bath, temperature 90° F. Keep the child in a half lying down position, and draw the tongue forward. To prevent recurrence of attacks improve the child's nutrition by a digestible nourishing diet; do not give it too much food at one time; the clothing should be light weight woolen; exposure to cold, damp air or draughts must be avoided; have the child out of doors a great deal in mild, pleasant weather; cod liver oil is an excellent reconstructive; sponge baths must be frequently given with friction but gently so as not to excite a spasm.

Simple Fever.

FEVERISHNESS is quite common in children and often in delicate women of a nervous temperament, and does not invariably usher in any acute or serious diseases. The following remedies may be given as indicated, a dose every half hour or hour, and should be administered as soon as possible to prevent further development.

Aconite.—Feverishness after exposure to dry cold or cold winds, and after perspiration has been checked by draughts; getting wet while heated.

Arnica.—After wounds or hard physical labor or excessive exercise; feverishness, with bruised sore feeling; desire to lie down but keeps shifting about for a soft place in vain.

Belladonna.—Feverishness after having the hair cut, riding in a cold wind, going to dances or other excitement; face bright red; eyes bright and pupils dilated; restlessness and throbbing headache.

Ignatia.—General depression and prostration, with feverishness, headache as of a nail in the side of the head; loss of appetite; yawning and sighing; after grief, bad news, shame, or mortification, and for children after having been scolded or punished.

Gelsemium.—Feverishness and often high temperature in hysterical women, with vertigo; weakness and trembling; chilliness; bursting pressive headache; exhaustion after slight effort.

Bryonia.—Feverishness in rheumatic or irritable individuals, after taking cold or getting heated in summer; profuse perspiration even from slow walking; headache, as if the head would burst on stooping; feeling of dry, burning heat inside and desire to keep quiet.

Pulsatilla.—Feverishness following any indiscretion of diet, as eating pastry, ice cream, pork or sausage, or at the monthly flow, especially in mild, gentle, fair women without much force of character.

Rhus Tox.—After getting wet, straining a single muscle, keeping on wet clothes, going in swimming in too cold water, sleeping in a damp bed; constant desire to move about.

A dose of the indicated remedy every one or two hours.

Chicken Pox.—*Varicella*.

OF all the eruptive fevers, chicken pox is the mildest, but it is highly contagious, and few children who are exposed to it escape it. The most susceptible age is from one to five years, and one attack is usually protective. The eruption may appear without any preliminary symptoms, or there may first be slight chill, fever, lassitude, nausea and loss of appetite. Small raised spots, averaging the size of a pea, appear first on the chest and back, or on the forehead, face, and scalp, develop a watery fluid, dry up by the third day, turn into yellowish or brownish crusts and drop off in a few days. Fresh crops appear during the first two or three days, but cease in about a week. To distinguish between small pox and chicken pox bear in mind that small pox is ushered in by pronounced chill, high fever, vomiting, intense headache and backache, followed by the eruption of small red points, which, as they enlarge, feel like fine shot under the skin.

But few remedies are needed in chicken pox. *Aconite* for chilliness, heat, thirst and restlessness. *Belladonna*. Headache, sleeplessness; eyes very bright, and face much flushed. *Rhus Tox*. If the eruption is extensive, with much itching and burning.

Keep the child warm in bed, on a light or liquid diet, in a warm, well-ventilated room free from draughts; keep him separate from other children, give a tepid sponge bath every day.

Scarlet Fever.—*Scarlatina*.

THE disease germs of scarlet fever remain active months and years, and may be retained by books, clothing, letters, etc. It is evident

how necessary it is that every precaution should be taken to prevent infection in this way. On page 157 will be found a description of the symptoms of scarlet fever and its characteristics distinguishing it from measles. The most important complication is inflammation of the kidneys, and the next most common, inflammation of the middle ear with formation of pus.

Belladonna.—Perhaps the most important single remedy in scarlet fever, and chiefly called for by the smooth, scarlet redness of the skin, sore throat, high fever and head symptoms. We find marked nervous excitement and disturbance of the circulation, with throbbing of the arteries; face bright red; eyes infected; sometimes delirium; burning hot skin; pulse full, or small and quick; throat and tonsils inflamed and swollen; tongue white, with red points; *bright scarlet, smooth* rash.

Gelsemium.—Early in the disease when the patient is languid, quiet and much prostrated; dizziness; aching in the back and limbs.

Rhus Tox.—Small fine eruption, containing small red points or vesicles and of a darker color than the belladonna eruption, with dark mottled eruption; high temperature; swelling of and sometimes discharge from the glands under the lower jaw; brownish deposit on lips and teeth; restlessness; delirium.

Bryonia.—Tardy development or suppression of the eruption; face red; lips dry; tongue brownish; great thirst, and drinking much at a time; disinclination to move, and pain on moving; especially useful when fluid forms in the chest owing to involvement of the covering of the lungs.

Arsenicum.—Delayed eruption in malignant scarlatina, or the rash suddenly turns pale or livid, and is interspersed with small spots like flea bites; tongue dry, brown, cracked or blackish and smooth; great prostration and restlessness; also with putrid sore throat; scanty urine, and involuntary, loose movements. Not a remedy for the early stages.

Also *Aconite* in the very beginning with characteristic high temperature, and full pulse; great anxiety and restlessness; do not give after the eruption appears. *Apis.*—Burning, stinging pains in the throat, with swelling; smooth eruption; drowsiness; great restlessness and nervousness; early prostration; scanty urine.

A dose of the indicated remedy every one or two hours.

The sick room should be well ventilated and kept at a temperature of about 70° F. Do not let the patient sit up until several days after his temperature has become normal. Milk is the best nourishment while fever continues, or milk with beef peptonoids, malted or peptonized milk; later broths, white of egg, fruit juices, and afterward custards, dropped eggs, blanc mange, etc. Plenty of water to drink

at all stages; sponge baths two or three times a day if there is much fever, or a wet pack; inunctions of lard, olive oil or cocoa butter alleviate itching, and prevent the scattering of scaly particles when the eruption begins to dry up. Cloths used to receive expectoration, etc., should be burned; bed clothes and other clothes disinfected. The use of oxygen for inhalation in malignant cases is recommended by reliable authorities.

At the conclusion of a case everything in the room must be disinfected, scrubbed with disinfectant or burned. Do not rely on the burning of sulphur in the room, but cleanse everything with bichloride of mercury 1 to 1,000, then have the walls repainted or repapered.

Measles.

THIS highly contagious disease is described at length elsewhere, and is usually of a mild type, but it should be remembered that if neglected or improperly treated, serious complications such as bronchitis, pneumonia, inflammation of the eyes, ears or throat may occur, and the future health or even life itself be endangered. The disease develops in from seven to fourteen days after exposure, and no age is exempt from an attack.

Aconite.—In the beginning, with fever, dry, hot skin; full, frequent pulse; much thirst and restlessness; red, watery eyes, sensitive to the light; dry, hoarse or even croupy cough, gritting of the teeth.

Gelsemium.—In the beginning when fever is moderate, the pulse soft, and the patient quiet and languid; aching in the back and limbs; desire to be let alone.

Pulsatilla.—Marked catarrhal symptoms, with little fever; thick, yellow, bland discharge from the nose; eyes water and are red; loss of appetite; coated tongue; bad taste in the mouth; may be vomiting and pain in the stomach.

Euphrasia.—Eyes and nose much affected; hot and burning watering of the eyes; copious bland discharge from the nose; hoarseness and dry cough.

Veratrum Vir.—High temperature, and full, strong pulse, with delayed eruption; convulsions.

Tartar Emet.—Measles complicated with bronchitis; with wheezing, rattling respiration, and profuse discharge of mucus; difficult breathing.

Also *Belladonna* in the early stage when the fever is high; face flushed; eyes bright and pupils dilated; throbbing headache; sore throat; starting in sleep or cannot get to sleep. *Bryonia.*—Tardy eruption; dry, painful cough; soreness of the limbs and body; hard, bursting headache; oppressed breathing; stitches in the chest.

Arsenicum.—Bad cases much prostrated, with too early or sudden disappearance of the rash; quick, small pulse; constant craving for a little cold water; restlessness; vomiting and diarrhœa. A dose of the indicated remedy every hour.

The patient should be isolated in a well-ventilated room free from draughts and of an even temperature of about 70° F. and the light partially excluded. If there is high fever, give cool sponge baths, otherwise a warm sponge bath daily, and anoint the skin with carbolized vaseline or cocoa butter. Use a shade for the patient's eyes or a screen whenever there is a bright light in the room. Liquid diet during fever; disinfection of all discharges, and absolute cleanliness; fumigate the room when the case terminates.

Colic.

It has been truly said that some children seem to have been born colicky; usually, however, colic is due to indigestion or constipation, and, in nursing infants, to indigestion in the nurse or excessive emotion. Worms or obstruction of the bowels may cause colic, and, in older children, eating unripe or decayed fruit or drinking large quantities of cold water.

The principal symptoms in infants are sudden waking out of sound sleep with sudden paroxysm of spasmodic crying, drawing up and then straightening of the legs, clenching of the hands, jerking of the feet, tossing and contortion of the whole body, and often flatulence, with distention or retraction of the abdomen. Steady, gentle pressure often temporarily relieves.

Chamomilla.—Colic with flatulence; passing wind does not relieve; distended abdomen, sensitive to touch; contractive pains; greenish diarrhœa, smelling like rotten eggs.

Nux Vom.—Colic, flatulence, constipation; colic following the administration of soothing syrups or other drugs.

Colocynth.—Apparently severe, cramp-like pains, worse every five or ten minutes; great restlessness; moaning; twisting and doubling up of the body.

Pulsatilla.—Flatulent colic with nausea, vomiting, and green, watery, slimy diarrhœa.

Plumbum.—Violent colic, with drawing in of the abdomen; rumbling in the bowels; obstinate constipation.

Do not give gin, brandy, paregoric or soothing syrups. Put the child in a hot bath, or apply hot compresses to the abdomen; give hot water to drink; inject hot water into the rectum, or if the rectum is packed with hard fecal matter, inject an ounce of warm olive oil; rub the abdomen gently and put on a flannel binder; omit or reduce the nourishment during the attack.

Cholera Infantum.

BOTTLE-FED babies in hot weather, and under unhygienic conditions are particularly liable to suffer from this disease, which is characterized chiefly by the suddenness of its onset, with violent vomiting and diarrhœa. The frequent profuse discharges rapidly become watery, colorless and bad smelling; while the vomited matter, at first containing food, soon consists of mucus or watery fluid and bile and everything is vomited as soon as taken. There is great thirst, a pale, pinched, drawn look to the face, and rapid emaciation. Death may occur in a few hours, or improvement set in within a day, the cessation of vomiting being one of the first hopeful signs. High temperature and a very rapid, feeble pulse is found in these cases, with coldness of the skin and extremities.

Veratrum Alb.—Vomiting and purging, especially the latter, followed by *great prostration; cold sweat on the forehead;* severe colic, stools profuse and watery; great thirst; feeble, weak pulse.

Ipecac.—Copious, watery, green stools of blood and mucus, with *constant nausea,* vomiting and colic.

Arsenicum.—*Extreme restlessness, unquenchable thirst for small quantities of water,* great prostration; stools dark, watery, offensive, worse after eating or drinking and after midnight; extremities cold; face pale.

Mecurius Dulcis.—Lessening of the fever, but continuance of the diarrhœa with griping pains; much mucus in stools, and sometimes blood, with much urging.

Podophyllum.—Stools profuse, *painless,* watery, with meal-like sediment; gagging and retching without vomiting.

Cuprum.—Green, painful, frequent but rather small stools; retching, violent but fruitless attempts to vomit; tendency to convulsions from the beginning; eyes sunken, with blue rings about them; colic and cramps.

A dose of the indicated remedy every hour. Refer to the remedies mentioned under “Asiatic Cholera,” especially *Camphor*.

Let the stomach rest absolutely for twenty-four hours. Warmth and stimulation are essential in collapse; wrap the child in hot flannels, and put hot water bottles in the bed, being careful not to burn the sufferer. If there is no coldness of the skin and extremities, but much fever and restlessness with the stomach and bowel disturbance, keep the child in a cool place, well ventilated and out of draughts; give frequent sponge baths, and plenty of water to drink that has been boiled. The stomach should be thoroughly emptied in the first place, in children over two years of age, by giving large drinks of boiled water, or the stomach may be washed out by passing a soft

rubber tube into it. Hot injections may be used to flush out the bowels. Do not give milk, but begin with barley water and cream, or raw beef juice, or unsalted, strained chicken or mutton broth at intervals of four hours, and in amount from one-fourth to one-half the quantity usually taken. Fresh air is essential, and a change of air, especially to that by the sea, is beneficial. A binder of soft flannel about the abdomen is to be recommended.

In simple diarrhoea consult the list of remedies and general treatment under "Looseness of the Bowels."

Jaundice in Children.

IN early infancy simple jaundice is due to a distension of the blood vessels of the liver which quickly passes away as the bile passes off more freely. The yellow hue of the skin, and the pearly look to the whites of the eyes will be easily recognized. In little children jaundice is not infrequent after catching cold, the liver being congested, and other symptoms such as chilliness, moderate fever, headache, sometimes vomiting and diarrhoea or constipation developing.

Aconite or *Ferrum phos.* may be given for symptoms of congestion due to exposure to cold or checking of perspiration. *Nux vom.* when overfeeding is the cause. *Ipecac.* Congestion with much nausea and vomiting. *Mercurius sol.* Tongue heavily coated white, and shows the imprint of the teeth; constipation, and the stools may be gray and pasty. Give a dose of the indicated remedy every three or four hours. Consult the remedies mentioned under "Jaundice," especially *Chamomilla*, *China* and *Cheilidonium*.

Great care should be exercised in feeding children old enough to have a mixed diet; an excess of meat and starchy foods should be avoided; fresh fruits and vegetables given judiciously; no tea, coffee, pastry or fried foods or fresh bread. The last meal of the day should be light; all the habits of the child should be regular, and the bowels and skin kept active. Plenty of not too cool water should be drunk between meals.

Retention of the Urine in Young Children.

EXPOSURE to cold or catching cold, or extreme nervousness may cause temporary retention of urine in young children, when there is no organic trouble. One of two remedies is all that will usually be called for: *Aconite* in retention from cold, with crying and restlessness, or *Belladonna* in full-blooded, excitable children, with spasm of the neck of the bladder, and passing of water drop by drop, with great difficulty and urging. Consult the section on "Retention of Urine and Strangury" for other remedies, and for the general treatment.

Wetting the Bed.—*Nocturnal Enuresis.*

ORDINARY cases in children are of nervous origin, from impoverished blood; hysteria; too long a foreskin or adhesion of the foreskin in little boys, or in girls of the clitoris, or lack of cleanliness about these parts and the accumulation of a white, cheesy secretion called smegma. Other causes are worms; masturbation; cracks in the rectum; eczema; irritation of the bladder from acid urine due to improper food or drink. Some children seem to have a constitutional weakness.

Causticum.—Especially useful in boys and women, according to Cowperthwaite, when no special cause is discoverable, and urine passes in the first sleep, or on coughing, sneezing, or the slightest excitement in daytime.

Belladonna.—When wetting the bed at night seems to be a habit; restless sleep, and sudden starting from sleep, especially in nervous, excitable children.

Equisetum.—An excellent remedy in constant nightly wetting of the bed in children; also in weakness of the bladder, and dribbling of urine in old men, or in the insane

Benzoic Acid.—Irritable bladder, with dribbling of high colored, strong smelling urine.

Sulphur.—Long standing, chronic cases, where no special cause is assignable; pale, lean children, with large abdomen, fond of sugar and highly seasoned food and averse to being washed.

Also *China* or *Santonine* when the patient has worms. *Pulsatilla*. Wetting the bed, especially in little girls; profuse flow of pale, watery urine; dribbling of the urine while sitting or walking. *Gelsemium* when there is partial or complete paralysis of the neck of the bladder, or extreme nervousness; inability to hold the urine when excited as from "stage fright." These remedies should be given in the tincture or first decimal, a dose three times a day.

The bowels must be kept open; any discoverable cause of the affection removed; stimulating food and drinks, and excitement of every kind avoided; early hours kept; a firm mattress, with only light bedding used; much out-door exercise taken, and a daily cold sponge bath; the bladder must be emptied regularly; the last meal of the day be light, and little, if any water drunk in the evening. Electrical treatments may sometimes be taken to advantage

Night Terrors and Sleeplessness.

HIGHLY organized or debilitated children are most subject to night terrors; enlarged tonsils or growths in the nose are frequent causes, and sometimes indigestion. The attacks usually begin between the

appearance of the first and second sets of teeth, and rarely later than the eighth year. They occur during the first three or four hours after going to sleep, with sudden starting up, or screaming, and inability at first to recognize parents or friends.

Although the cases mentioned may favor sleeplessness, indigestion is probably the most prominent one; excitement is another common cause, also lack of regularity in the child's habits, constipation, worms, chafing, poor ventilation, and too little out-door life.

Aconite.—Sleeplessness, and great restlessness and tossing about; anxious, vivid dreams, waking with a start; nightmare.

Belladonna.—Especially for excitable children, who get sleepy on going to bed, but start up as in a fright when just falling asleep; waking at night full of fear; moaning and tossing about in sleep. One of the most generally useful remedies.

Hyoscyamus.—Sleeplessness from excessive nervous excitement; restless sleep; starting from fright; deep sleep with convulsive movements; waking with a cry.

Nux Vom.—Much yawning and sleepiness during the day; sleepy in the early evening, but not on going to bed; wakes before daylight and stays awake a couple of hours, then goes to sleep and is awakened with difficulty; especially children having indigestion or constipation, and who sleep mostly lying on the back.

Chamomilla.—Fretful, irritable babies and children who whine, kick or scream, and are hard to please; moaning, starting up, crying, tossing about and talking in sleep.

Calcarea Carb.—Fair, plump children, easily tired; sleepy and weary during the day; fall asleep late in the evening, or stay awake for hours; have bad dreams, and are hard to arouse in the morning.

Also *Gelsemium* for nervous children who sleep fitfully all night, but grow more and more wakeful and restless, and have bad dreams after midnight; sleeplessness from nervous irritation. Refer as well to the remedies mentioned in the section on "Sleeplessness."

Secure good healthy surroundings for the child day and night; a quiet, well-ventilated darkened room; a firm mattress, light weight bed clothing, hair pillow; regulate the diet; give a warm sponge bath at night; do not let a child indulge in rough play or sit up late in the evening; do not make babies or little children "show off" at any time, or stimulate them to be constantly observing things; regularity as to sleep, feeding and exercise is important, all abnormal conditions, worms, constipation, eye defects, throat and nose affections must be remedied; to be sure the child is cared for by an intelligent, conscientious person.

Rickets.—*Richitis.*

RICKETS is a chronic disease of nutrition, and while the only important anatomical changes are found in the bones, it must be remembered that it is not a bone disease, but one affecting almost every tissue and organ in the body. It occurs most commonly between the ages of six months and two years, in cities, especially in children fed on sweetened condensed milk and proprietary foods.

In the first place there are often disturbances of the stomach or bowels; the child tires easily; seems sensitive to handling; teething and walking are delayed; the head becomes larger and flattened on top; the lower part of the face peaked; the chest prominent (pigeon-breasted); and the front ends of the ribs feel lumpy like large beads; the long bones of the extremities grow soft and bent, and there is much perspiration of the head, face, neck, and chest; there may be irritability, sleeplessness, and twitching of the muscles.

Improper food and surroundings; bad air; dampness; lack of cleanliness, sunshine and exercise, and inherited constitutional weakness, are predisposing causes.

Calcareo Phos.—Fat, fair, flabby children; sallow, earthy complexion; teething and walking delayed; constant sour perspiration, especially during sleep; neck thin and weak, and head held up with difficulty; abdomen distended; may be sour vomiting, especially of milk, and diarrhœa; feet damp and cold.

Silicea.—Copious perspiration, especially of head; enlarged abdomen; child emaciated and scrawney; tenderness of body and soreness of head to touch; tendency to enlarged glands and lumps on head; small wounds heal with difficulty

Sulphur.—Voracious appetite; milk disagrees; emaciation; constipation, or early morning diarrhœa; tendency to skin eruptions; child sleeps in cat naps; detests water and being bathed; sour, copious night sweats.

Phosphoric Acid.—Frequent, persistent, copious diarrhœa, preceded by rumbling of flatus in the bowels.

Ferrum Phos.—Tenderness of the limbs, and pain on motion; great debility, paleness and weakness; bronchitis, and bronchitis with pneumonia.

Kali Iod.—Syphilitic children, with enlarged glands; swelling of the bones; hard lumps on the head, decaying teeth; tearing, darting pains in the legs and arms; great emaciation; fretfulness and irritability.

A dose of the indicated remedy every three hours. If the child is breast fed, and the mother's milk poor, get a wet nurse, or if the baby is over five or six months old, try feeding with sterilized milk and

barley water, or peptonized milk; give ten or twelve drops of cod liver oil once or twice a day; avoid patent foods; the expressed juice of raw beef, strained chicken and mutton broth, the white of egg, and, if the child is over a year old, a small quantity of finely scraped raw beef may be given to advantage. Fresh air, sunshine, sponge baths, light weight woolen underwear, freedom from dampness are essential. Do not let the child walk, and do not handle him more than is necessary. Deformities should be treated early by a good surgeon.

Marasmus.—*Extreme Emaciation.*

THIS also is a disease due to faulty nutrition, and characterized by a steady loss in weight, great debility, drumstick legs, and claw-like hands; the face is pinched and old; eyes large and prominent; skin wrinkled; vomiting excited by the slightest cause, and there are skin eruptions or sore mouth; complete loss of appetite.

The remedies and general directions given under “Rickets” are adapted to this disease, but two or three drugs may be mentioned in addition.

Arsenicum.—Undigested stools, and diarrhœa or vomiting the minute the child begins to eat or drink, worse after midnight; rapid emaciation; skin harsh and dry, and often yellowish and tawny; much restlessness and moving about as if in distress; constant thirst, but drinking little; bad cases where child looks like a mummy, and stomach symptoms are very marked.

China.—Child much exhausted by vomiting and diarrhœa, and becomes drowsy; coldness of the face and body; belching of gas.

Antimonium Crud.—Fretfulness, crying when washed or touched; or lies quiet and pays no attention to anything; mouth sore; white coated tongue; nausea and vomiting; much sweating; first diarrhœa, then constipation. A dose of the indicated remedy every three hours.

Worms.

TAPE worms are found more often in adults than in children, the latter being most subject to pin or thread worms, occurring in little balls in the rectum, or round worms, which multiply in the small intestine; are reddish brown and four or five inches long.

Worms may be suspected when there are the following symptoms: loss of appetite or ravenous hunger; disturbed sleep; great restlessness; picking at the nose; bad breath; lassitude; dark circles round the eyes; indigestion; straining at stool.

China.—Pin worms, with picking at the nose; canine hunger, or variable appetite; hard, distended abdomen; mucous stools, often mixed with worms; colicky pains in the bowels; great itching of

the anus; milky urine, often passed involuntarily at night; livid circles about the eyes; restlessness, and grinding of the teeth in sleep. A dose three times a day.

Teucrium, 1 x.—Pin worms, with much irritation and itching of the anus; picking at the nose; offensive breath; capricious appetite; straining at stool; colicky pains in the abdomen; disturbed sleep. Give as above.

Santonine.—Symptoms similar to the teucrium when round worms are suspected. One or two doses morning and night for adults or half a grain for children.

Mecurius Cor.—Slimy, tenacious, mucous stools, with pain and distended, hard abdomen; excessive secretion of saliva. A dose morning and evening for a week. This remedy corrects the condition of the bowels favoring the development of worms.

Should the above mentioned remedies not prove effective, three to fifteen grain doses of *Naphthalin*, repeated three times a day will be found serviceable. The fluid extract of *Spigelia* in one to two drachm doses is also a good vermifuge. One of the best remedies is pumpkin seed. Take the fresh seeds, hull them, beat to a paste with powdered sugar, and dilute with milk. Two doses fasting may be taken, and follow with half an ounce of castor oil.

When a child has pin worms apply lard or petroleum to the anus daily, and insert within the folds of the rectum. All underdone vegetables and meats, especially pork, pastry, sweets and stimulants should be avoided, and salt used freely.

Diseases of Women.

Chlorosis.—*Green Sickness.*

At puberty, or the age when the girl becomes a woman, delicate or excessively nervous children, or those living under bad hygienic conditions, or studying too hard, may develop a condition called chlorosis, characterized by impoverishment of the blood; greenish pallor of the skin; palpitation; headache; indigestion; nosebleed; irritability; an appetite for chalk, slate pencils, etc.

Ferrum.—Great pallor of the face, with occasional sudden red flushes, with dizziness; palpitation of the heart; neuralgia of the stomach; chilliness; headache; feverishness towards night; absence of the menses, or when the flow is established it is too profuse.

Pulsatilla.—Suppression of or scanty menses; girls of a mild, gentle, tearful disposition; chilliness; feels uncomfortable in a warm room, better in the open air; tremulousness; may be drawing, tearing, shifting pains, worse at night, with sleeplessness.

Sulphur.—Rush of blood to the head, with cold feet; pressive headache in the morning; loss of appetite, with feeling of fullness in the stomach after eating a little; constipation; oppression of the chest; palpitation, especially at night; frequent flushes of heat; night sweats and great prostration and weakness.

Calcareo Carb.—Scrofulous cases, with tendency to obesity and enlargement of the glands; morbid craving for chalk, pickles, etc., acidity of the stomach; the girl takes cold easily, and tires readily.

Also *Phosphorus* in debility following too rapid growth, masturbation or depressing mental influences; great weakness and prostration; palpitation; night sweats. *Graphites*. Scanty menstruation; dry, harsh, rough skin; constipation; acrid leucorrhea. Consult the remedies under “St. Vitus’ Dance” when there are pronounced nervous symptoms.

A dose of the indicated remedy three times a day. Fresh air, sunshine, exercise, early retiring, simple nourishing food, physical and mental rest, salt water baths, pleasant surroundings, cheerful companionship, normal action of the bowels, proper clothing, and freedom from excitement are essentials in the treatment of these cases.

Inflammation of the Vulva and Vagina.

THE lining membrane of the external genitals called the vulva, is continuous with that of the passage leading to the uterus, known as the vagina. It is a mucous membrane resembling the lining membrane of the throat, and like the throat subject to inflammation and catarrh, the latter being the result of the former. Inflammation of the vulva or vagina may be due to germs, irritating discharges, lack of cleanliness; worms, masturbation; sexual excesses or to irritation from the urine in diabetes. There is dryness, heat, redness, itching, swelling of the parts, followed by a watery and later by a creamy discharge. The latter is called leucorrhea or the whites.

Aconite.—Vulva or vagina dry, hot and sensitive. *Belladonna* may be given when, in addition to the above symptoms, there is a bearing-down feeling as if the organs in the pelvis were being forced from the vulva; swelling of the external genitals; fever and headache; pains worse on motion.

Cantharis.—Swelling and irritation of the vulva; violent itching in the vagina; inflammation of the urethra, and difficulty in passing urine.

Also *Mercurius cor.*—Thin, watery, blood-tinged discharge; intense inflammation of the external parts. *Kreosotum.*—Soreness, smarting and swelling of the external parts which are hot and hard; itching in the vagina; yellow, offensive, acrid discharge; burning on passing water. *Sepia.*—Great dryness of the vulva and vagina,

which are painful to the touch; itching eruption on the vulva, with redness and swelling; much weight and bearing down in the lower abdomen (pelvis); yellow, milky, excoriating discharge, and especially before the menstrual flow. A dose of the indicated remedy every two hours in acute cases, three times a day in chronic. Consult the remedies given under "Leucorrhœa."

The cause of the inflammation must be sought and removed. In cases due to gonorrhœa, treatment under the care of a competent physician should be at once instituted. Absolute cleanliness is necessary, and in simple inflammation a douche of tepid water one to four times a day, should be followed by a medicated douche. For a raw, excoriated surface, two to four teaspoonfuls of fluid extract of calendula to a pint of tepid water; when there is a profuse secretion, partly mucous, partly purulent, substitute hydrastis; when itching is very trying and there is biting and smarting or an offensive discharge, use ten to thirty drops of kreosotum to a pint of water. The external genitals should be dried and soft pieces of old cotton or linen on which vaseline, calendula or hammamelis cerate had been spread, should be placed between the labia to prevent irritation when walking; or dust on powdered corn starch or calendulated boracic acid if there is no discharge, but only heat and burning. Abstain from sexual intercourse; eat unstimulating food; take daily baths; keep the bowels open, and live out of doors.

Leucorrhœa.—Whites.

LEUCORRHEA is a catarrhal discharge from the lining mucous membrane of the vagina, neck or body of the uterus, due to want of cleanliness, sexual excesses, gonorrhœa or syphilis, inflammation of the organs of generation, new growths, general debility, or may occur in the course of other diseases. This discharge may be slight or profuse; thin, glairy, thick, lumpy, or stringy; watery, milky, yellowish, greenish, bloody, or purulent; odorless or very offensive; bland or excoriating and accompanied by heat, burning and intense itching of the genitals. There may be no pain, but lassitude, indigestion, headache, dizziness, faintness, nervousness, or hysteria.

Pulsatilla.—Thick, white or creamy discharge, especially in cases of delayed or scanty monthly flow; the external parts swollen, but painless; indigestion; nausea; chilliness; frequent, profuse flow of urine.

Calcaria Carb.—Profuse, milk-like, or yellowish discharge; monthly flow too early and profuse; soreness and swelling of the vulva; scrofulous or debilitated women, very sensitive to cold, with constant cold, damp feet; acid stomach.

Hydrastis.—Yellow, sticky discharge, often offensive and with shreds of mucus or membrane in it; chronic cases, especially in those having liver or stomach trouble.

Sepia.—Pressure and bearing down in the lower abdomen; stinging pains in the ovaries; discharge thick, creamy, yellowish, may be bland or excoriating; leucorrhea especially before the monthly flow, during pregnancy, or at the change of life.

Alumina.—Profuse, yellow, acrid, corroding discharge, with burning in the genital organs, the parts being corroded and inflamed; worse before and after the monthly flow; sluggish bowels, and scanty movements, passed with difficulty.

Also *Helonias* when there is a whitish discharge, with white particles in it; heat, itching and swelling; dragging in the uterus; great debility and prostration; melancholy; especially for nursing mothers or after any great strain on the system. *China* and *Ferrum* are both serviceable remedies in leucorrhea in women much debilitated and run down, with impoverished blood and indigestion. A dose of the indicated remedy three times a day.

The general directions under “Inflammation of the Vulva and Vagina” should be followed. In addition to the recommendations for douches, may be mentioned the use of boracic acid, one even tablespoonful to a quart of hot water, or plain cold water. Never use a bulb syringe, but a fountain syringe, and always lie down to take a vaginal douche.

Displacement of the Uterus.

THE uterus swings free in the pelvis, that is, it has no bony attachments, but is supported by ligaments. It is therefore easily tipped or bent out of its normal position, or may sag downward as in “falling of the womb.” A few of the commonest causes of displacements are falls or jumping, lifting heavy weights, constipation and straining at stool, excessive exercise, standing constantly, tight clothing, letting the bladder remain full, general debility, tumors and child-bearing. Local treatment under the care of a skilled physician should always be instituted in connection with the use of remedies. The latter will be most effective in the early treatment of displacements due to injuries or child-bearing, and in recent cases in those who will abstain from sexual intercourse. The general condition of the patient must always be taken into account.

Nux Vom.—Sensation of pressing down toward the genitals, especially in the morning; monthly flow dark, and too early and profuse, with nausea, chilliness and attacks of faintness; constipation; indigestion.

Sulphur.—The general symptoms are important, such as heat on the top of the head, with cold feet; burning of the soles of the feet, and cramps in the calves of the legs and soles of the feet at night; also thick, dark excoriating monthly flow, too late, too profuse and too brief, with burning in the vagina and stomach.

Sepia.—Falling of the womb, with bearing down and strong pressure in the pelvic organs; vagina hot, dry, and painful to the touch; hot flushes; irritability of the bladder; bearing down sensations, better on lying down, worse on sitting up, and especially when walking.

Belladonna.—Recent displacements, with great local congestion, and pressure downward as if everything would fall out; back aches as if broken; burning, throbbing, cutting pains in the pelvis; monthly flow too early, and too profuse, or thick, dark and offensive.

Also *Ferrum* in cases where there is great debility, with impoverished blood; head congested, face fiery red; flatulence and no appetite; feeling of pressure on the chest. A dose of the indicated remedy three times a day.

Inflammation of the Uterus.

THERE are many different names for inflammations of the uterus, depending on the location, and the tissues involved. It is difficult for anyone but a physician to distinguish clearly between the different parts affected, in any event it is the symptoms as a whole that are to be considered and prescribed for. In metritis there is inflammation of the body of the uterus; in endometritis and endocervicitis of the lining membrane of the uterus and neck of the uterus.

These diseases may be acute or chronic, and are caused by infection during or after labor, abortion, or operations; gonorrhea; exposure to wet or cold during menstruation; sexual excesses; the extension of inflammation from nearby organs; uterine tumors, displacements or tuberculosis.

Inflammation of the neck of the uterus may be followed by ulceration; and of the body of the uterus, when occurring in childbed, by puerperal fever and peritonitis. Leucorrhea is a common symptom in endometritis, and treatment is given under that section. Consult also the section on "Child-bed Fever" for remedies for acute inflammation of the body of the uterus. In all inflammations *Aconite*, *Belladonna* and *Veratrum vir.* are generally called for.

Nux Vom.—A frequently indicated remedy with bruised pain in the neck of the uterus; frequent desire to urinate, with pain, scalding and burning; constipation; frequent and ineffectual urging to stool; much pain in the small of the back; headache, fullness and pressure on the forehead; pain and distention in the abdomen, symptoms worse after 3 P. M.

Sulphur.—Chronic cases that get better for awhile under the indicated remedy, then cease to improve; also when there are frequent flushes of heat, passing off in a little perspiration and faintness; heat on the top of the head; feet burn; "cat naps" at night; weak, faint spells frequently during the day; may be yellow, excoriating leucorrhea.

Mercurius Cor.—Ulceration of the neck of the womb, especially in cases due to syphilis or gonorrhea; profuse greenish, yellow, or purulent discharge; smarting and itching of the vagina; easy perspiration; much sensitiveness to draughts of air.

Hydrastis, Calcareæ carb. and **Sepia** should be referred to under "Leucorrhea," also *secale* under "Profuse Flow of Blood from the Uterus." A dose of the indicated remedy three times a day.

Local treatment is generally indispensable in these cases. Good hygiene; rest in bed during the monthly flow; perfect cleanliness; sitz baths; copious hot water vaginal douches (see "Leucorrhea"), simple nourishing food, absolute sexual rest, and perseverance in treatment are essential. During acute attacks of abdominal pain, hot water compresses sprinkled with turpentine, and frequently changed, will give much relief.

Inflammation of the Ovaries.

Pus germs, or the germs of gonorrhea or tuberculosis may cause inflammation of the ovaries which may be acute or chronic. In an acute attack there is fever, rapid pulse, agonizing pain in the region of the ovary, extreme sensitiveness on pressure; and if treatment does not arrest inflammation, pus forms, and life itself is endangered. In chronic inflammation there is constant pain, especially before and after the monthly flow, on having a movement of the bowels, and from any sudden jolt or jar. The monthly flow is profuse, prolonged, and painful, and changes occur in the structure of the ovary.

Aconite.—Early in acute cases with fever, restlessness, cutting, darting pains; the abdomen hot and sensitive to touch; painful urging to urinate; especially inflammation following sudden suppression of the monthly flow from cold.

Belladonna.—Acute stage; face and head much congested; throbbing in the arteries of the neck and abdomen; severe clutching, clawing, stabbing or throbbing pains in region of the ovaries, especially on the right side, with great local sensitiveness; cannot bear the least jar; high fever and thirst. The leading remedy in acute cases whether mild or severe.

Bryonia.—Cases of moderate severity in rheumatic women, with stitching pains, worse on coughing, deep breathing or motion; shooting pains extending to the hips; tongue coated white.

Cantharis.—Stitching, pinching pains in the ovaries; difficult urination; frequent urging to pass water; bloody urine; violent pains in the bladder.

Apis.—Acute or chronic cases, especially in the right side; burning, stinging pains worse at time of monthly flow; urging to urinate; scanty urine and swelling of the feet.

Also *Macrotin* in hysterical or rheumatic cases, in the latter when rheumatism seems to shift to the ovaries; shooting pains, with bearing down sensation; irregular, delayed or suppressed monthly flow; great nervousness at that time, and pains under the breasts. *Conium*. Chronic cases; hardening and enlargement of the ovaries, with cutting pains; soreness and swelling of the breasts before the monthly flow, which is scanty or absent; acrid leucorrhea causing burning; sour stomach and pain in the stomach. *Pulsatilla*.—Suppression of the menstrual flow, with nausea, chilliness, pressure on the bladder and rectum; violent pains making patient cry. A dose of the indicated remedy every hour in acute cases, every three or four hours in chronic. Consult the remedies under "Painful Menstruation," "Profuse Flow of Blood from the Uterus," and "Cessation of Menstruation."

In acute cases while there is fever and much inflammation the diet should be liquid; hot douches should be given frequently; hot hop-bag, hot water bag, dry hot bran-bag, hot compresses wet with hamamelis and water, frequently changed, may be applied to the abdomen. Rest in bed is essential in all cases, especially during menstruation; the bowels must be kept open, and sexual excitement of any kind avoided.

Painful Menstruation.—*Dysmenorrhea*.

PAINFUL menstruation may be neuralgic or ovarian, or due to inflammation of the uterus, the casting off of the inner membrane or obstruction by small growths, contraction of the passages, congestion from getting the feet cold or wet, mental shock, the result of heavy clothes, lacing and many less frequent causes.

Viburnum, 1 x.—Spasmodic dysmenorrhea; excruciating, colicky pains in the lower part of the abdomen, coming on suddenly, preceding the monthly flow, lasting for hours; bearing down and aching, and much nervousness.

Cimicifuga.—Severe pains in the back, down thighs and through the hips; hysteric spasms, cramps, and tenderness of the lower part of the abdomen; dysmenorrhea in rheumatic cases.

Caulophyllum.—Spasmodic dysmenorrhea; bearing down pains; normal or scanty flow, in patients subject to rheumatism of the small joints; sympathetic spasms of the bladder, rectum, or bowels.

Belladonna.—Paroxysms of severe, dragging, pressing pains in the pelvis from six to twenty-four hours before menstruation; the flow bright red, too early and profuse; inflammation of the ovaries; face red and bloated.

Chamomilla.—Neuralgic dysmenorrhea; drawing pain from the lower part of the back forward; griping, pinching, labor-like pains

in the uterus, followed by discharge of large clots of blood; excessive irritability and impatience; frequent desire to urinate.

Also *Cocculus* in menstrual colic from gas in the intestines; distention of the abdomen; sharp, cramp-like pains; headache and nausea as in seasickness; scanty, irregular, painful flow.

Xanthoxylum.—The flow too early and profuse, with pains from the ovaries down the front of the thighs; nervous, easily startled, hysterical women; neuralgic dysmenorrhea; headache and full feeling in head. Consult the remedies under “Absence of the Menses,” and “Profuse Flow of Blood from the Uterus,” especially *Pulsatilla*.

The indicated remedy should be given every fifteen minutes to one hour while the symptoms are acute during the monthly flow, and three times a day between the periods. Hot applications to the abdomen and spine, and rest, preferably in bed, are indicated. The following are important recommendations: Avoid late hours; tea, coffee and alcohol; violent exercise, wet or damp feet; tight, insufficient or too heavy clothing, or thin-soled boots; dancing while menstruating; sexual excesses at all times. Eat simple, nourishing food; bathe daily; take moderate out of door exercise; secure good ventilation; be amiable.

Absence or Suppression of the Menses.—*Amenorrhea.*

THE menstrual flow may be suppressed from various causes, the most common ones, perhaps, being getting chilled or wet. Cold baths, sea bathing, acute and chronic diseases, checked perspiration, a sea voyage, mental shock, tuberculosis, hemorrhages, pregnancy, lactation, and sexual excesses, occasion absence of the menses or amenorrhea, as it is called.

The resulting symptoms, in addition to lassitude, general debility, throbbing headache and indigestion, may be pain in the abdomen and small of the back, constipation, nervousness, nausea and lack of appetite. Vicarious menstruation, *i.e.*, hemorrhage from the nose or spitting blood, may occur when the menses are absent.

Pulsatilla.—Delayed, suppressed or scanty; hysterical symptoms; nausea and vomiting; palpitation of the heart; loss of appetite; lassitude, chilliness; headache; pain in abdomen or loins. A dose every two hours.

Cimicifuga.—Headache, nervousness, sometimes hysteria; pain in left breast and side; rheumatic tendency; neuralgia of the uterus, pains dart from side to side; the flow irregular, delayed or suppressed from mental emotions.

Calcarea Carb.—Delayed menstruation in scrofulous girls, who are fleshy, lack muscle, have a fair complexion, perspire easily about the head, have cold, damp feet, and are of a consumptive tendency.

Aconite.—This is an invaluable remedy for sudden suppression of the menstrual flow from a chill, fright or vexation, with congestion of the head or chest, anxiety and great restlessness, especially in full-blooded young women.

Also *Ferrum*.—Delayed appearance of first menses, with debility, languor, palpitation, indigestion, leucorrhea, sickly complexion, puffiness of the face or ankles. *Graphites*.—Delayed or tardy menstruation with scanty, pale flow; constipation; tendency to skin eruptions. *Belladonna*.—In very full-blooded persons, with pressure and throbbing in the head; much bearing down in the lower abdomen; nosebleed.

A dose of the indicated remedy every two or three hours during menstruation or when the menses are due; three times a day in the interval between periods. Consult the recommendations under "Painful Menstruation." Build up the general health if there is debility with nourishing food, milk, cocoa, malt extracts, cod liver oil, an outdoor life, and otherwise good hygiene. Hot foot baths or hot sitz baths are recommended, also mental as well as physical rest. In delayed appearance of the menses in young girls, leave them alone as long as they seem perfectly well, and let them live out of doors and hygienically. Never hesitate to consult a physician when there is ill health. Change of climate is often beneficial, also electricity.

Profuse Flow of Blood from the Uterus.—*Menorrhagia and Metrorrhagia.*

THE first of these long names is applied to too profuse flow of blood at the monthly periods; the second, to discharge of blood between the menstrual periods. Common causes of metrorrhagia are tumors and growths of the uterus, retention of the placenta after abortion, inflammations of the uterus; and of menorrhagia, general debility, heart disease, other diseases such as malaria or congestion of the liver, and incipient tuberculosis.

The remedy, whatever the cause, must be chosen in accordance with the majority of the symptoms; and whatever remedies are used, the most important part of the treatment is the removal of the cause of the condition whenever possible.

Calcareo Carb.—Too early and profuse menstruation, lasting too long, in scrofulous women, or where there is poor nutrition, and much debility; milk-like leucorrhea, with itching and burning; feet feel cold and damp; profuse monthly flow in nursing women. *Calcareo Phos.*—May be substituted, for young girls having frequent attacks of headache, and too frequent and too profuse menses.

Trillium.— "Bleeders" who menstruate every fortnight, the flow lasting six or seven days, blood bright red at first, then pale; yellowish leucorrhea during the interval.

Nux Vomica.—Too soon, too long and too profuse; stops for a day or two, then returns; irritability; nausea in the morning, with chilliness, attacks of faintness, and pressure towards the genitals; sedentary habits.

Belladonna.—Much congestion; blood bright red; pressive pains in the abdomen; face flushed and bloated; flow too early and profuse.

China.—Excessive flow, followed by much exhaustion, headache and ringing in the ears; heaviness of the head; weak pulse; fainting; twitching of the muscles; cold extremities; after great loss of blood.

Crocus.—Dark, stringy blood in black clots, worse from least motion; earthy yellow face; debility and palpitation; especially in young women.

Ipecac.—After labor or miscarriage; continuous flow of bright red blood; the patient is cold and pale; also when monthly flow is too early, profuse and of bright red blood, which clots readily.

Also *Secale* in hemorrhage from uterus following abortions or labor, when the uterus does not contract; uninterrupted flow of dark blood; worse from motion; also in inflammation of the uterus with profuse flow. A dose of the indicated remedy every two hours, or every fifteen minutes in hemorrhage following labor or abortions.

A careful examination of the uterus should be made by a skillful physician, that the cause of the trouble may be removed if possible. Surgical interference may be necessary. Rest in bed should be taken at the monthly periods when the flow is profuse. Live hygienically, and take a generous, nourishing diet including milk and eggs. A hot water bag to the spine is recommended. Six quart douches at a temperature of 115° may be taken twice a day; to the last quart a tablespoonful of powdered alum may be added. All local treatment, however, is best undertaken under a physician's direction. Sleep on a firm mattress, with light coverings; take a daily cold salt water sponge, avoid over-exertion, lifting anything heavy, tight clothing, excessive emotion, especially worry.

Cessation of Menstruation.—*Climacteric.*

BETWEEN the ages of forty and fifty, most frequently about the age of forty-five the menstrual flow occurs less often and diminishes in amount, finally ceasing altogether. This is the normal, physiological change in women denoting the close of that period of her life during which she should be able to bear children.

A profound readjustment of the nervous system takes place which goes on even after menstruation ceases. When the process is not normal, many complications may develop, such as cancer, inflammation of the uterus, fibroid and other tumors, derangements of the nervous system, obesity, etc.

It is very advantageous for a woman to be under the observation of a good physician during the change of life. Under the best

of conditions there are many annoying symptoms which homœopathic remedies will greatly relieve; these symptoms are mentioned below.

Cimicifuga.—Restless and unhappy state of mind; the patient feels grieved and troubled, is irritable and cannot sleep; sinking sensation in the stomach; pain in left side; fullness and dull aching in top of head.

Lachesis.—Hot “flushes;” burning sensation on top of head; profuse flowing; fainting spells; vertigo; flatulence; may be pain and tenderness in left ovary; patient nervous, anxious, and talkative.

Sanguinaria.—Change of life in women who flow profusely; vertigo, rush of blood to the head, with buzzing in the ears, and flushes of heat; headache in paroxysms, beginning in the back of the head, passing over the right eye; headache with nausea and chilliness, sometimes bilious vomiting; better in the open air, from lying down and from sleeping; acrid, bad-smelling leucorrhea.

Sepia.—Palpitation of the heart, in evening, in bed with beating of all the arteries, also during digestion; flushes of heat at night as well as in daytime; much prostration and faintness in the morning during menses; pain in the small of the back when walking; irritability; darting pains in head from left eye backward; derangements of the liver and stomach; liver spots on the skin and yellow saddle across the nose.

Gelsemium.—Headache with rush of blood to the head; heaviness, fullness and dizziness; dimness of sight; drowsiness; bruised feeling and throbbing in the head; may be nausea and vomiting; uterine neuralgia.

Also *Amyl Nitrite* for the hot flushes not relieved by *Lachesis*; much throbbing in the ears, intense fullness in the head, choking, constricted feeling in the throat. *Coffea* or *Passiflora* are indicated in cases where there is marked nervous excitement, with sleeplessness owing to great activity of the mind, and alertness of all the senses. A dose of the indicated remedy three times a day.

Every effort should be made to favor the normal action of the principal organs of the body, the skin, stomach, liver, bowels, kidneys, heart, etc. Frequent warm baths are highly beneficial; much fresh air and moderate exercise are necessary; a simple, rather abstemious diet is recommended; loose clothing; no excitement; early hours; restraint of all passions, and the avoidance of stimulants.

Any noticeable increase in the frequency or amount of the menstrual flow is good and sufficient reason for immediately consulting a physician; malignant or other disease may be present, and if so, it is of the highest importance that early treatment be instituted. It cannot be too strongly emphasized that the time for a woman to

prepare for a normal climacteric is through all her menstrual life, especially by avoiding wet or damp feet, excitement and overexertion during the monthly flow, and by pure and temperate living at all times.

Labor.—Parturition.—*Morning Sickness and Other Ailments.*

AMONG the derangements of the system during pregnancy, none is more common than nausea and vomiting, or morning sickness so-called, because these symptoms appear most frequently on first rising in the morning. With some women this difficulty lasts but a few weeks; in others, for several months. The distress may be slight or severe, sometimes threatening life itself, as in the form known as “Pernicious Vomiting.”

Arsenicum.—Vomiting after eating or drinking, with faintness and excessive prostration; much thirst for small quantities of water, vomiting as soon as taken; very pale, white look; uneasiness and restlessness.

Cocculus.—Intense nausea; scarcely able to get up in the morning; yellow-coated tongue, with aversion to food; worse from driving or being on the water.

Nux Vom.—Sickness every morning; bitter, sour risings; vomiting of sour mucus and food; excessive nausea with feeling as if vomiting would relieve; great depression of spirits; constipation; neuralgia of the stomach, with cramp-like pains.

Ipecac.—Constant nausea, never any let up; vomiting of bilious matter, undigested food, and large quantities of mucus; disgust for food; empty retching; pinching pains in the pit of the stomach; diarrhœa; neuralgia of the stomach with nausea.

Pulsatilla.—Especially when vomiting comes on in the evening or night; capricious appetite, longing for beer, acids, wine, etc.; nothing tastes good; absence of thirst; loss of taste, or bitter, fatty, sour or saltish taste; eructations.

Sepia.—Feeling of emptiness in the pit of the stomach; aversion to meat; nausea in the morning; bitter, saltish taste in the mouth; constipation; eructations tasting like bad eggs; disgust for all kinds of food; vomiting of food and bile.

Cuprum.—Violent vomiting of frothy mucus, sometimes green, relieved by drinking cold water; intense coppery taste; profuse salivation.

Phosphorus.—Sour eructations and sour vomiting; very weak feeling in the abdomen; constipation, with narrow, long, hard, dry feces, or profuse watery diarrhœa; patient sleepy all the time.

Also *Sulphur*. — Profuse salivation, the taste of which causes nausea and vomiting; flashes of heat; cold feet; “cat naps” at

night; aversion to meat; feels full after eating a little; ravenous hunger or complete loss of appetite. *Colchicum*.—Excessive nausea caused by the smell of food; extreme aversion to the odor or mention of food.

A dose of the indicated remedy may be given three or four times a day. It will be noticed that these remedies cover the annoying symptoms of aversion to food, neuralgia of the stomach, acidity, constipation, diarrhœa, and the excessive secretion of saliva. Other ailments of pregnancy, such as sleeplessness, debility, neuralgia, headache, leucorrhœa, itching of the skin, varicose veins, hysteria, etc., have been discussed at length previously, and should be consulted for the treatment. Additional remedies for the other conditions will be found under the appropriate headings such as "Constipation," "Diarrhœa," "Indigestion," etc.

Careful regulation of the diet; bathing and exercise; the avoidance of worry, excitement, sexual intercourse, tight clothing and late hours form essential parts of the treatment.

False Pains.

As pregnancy nears its close, many women are troubled with false labor pains which often mislead them into thinking that labor has begun, or is about to begin. The strain on the abdominal muscles and other tissues may cause them, or rheumatism or irritation elsewhere as constipation, indigestion, etc. False pains are generally constant, and when they are not, return at irregular intervals; may be feeble one time, and strong another, then feeble again. True labor pains occur at regular intervals, increase in strength, and cause the uterus to contract forcibly.

Caulophyllum.—A most helpful remedy for spasmodic pains in various portions of the abdomen below the stomach; irregular pains, flying in all directions.

Cimicifuga.—Especially in hysterical women or those subject to rheumatism; pains in the lower abdomen shooting from side to side; nausea; sleeplessness.

Nux Vom.—Pains in those used to rich or highly spiced food, stimulants, or a life lacking sufficient exercise; constipation; pain in the back preventing turning over in bed, and making the sufferer get up and walk about; worse about 4 A. M.

Also *Atropia* for neuralgic pains, appearing and ceasing suddenly; worse from the slightest jar, back feels as if it would break. *Pulsatilla*.—Pain in the ovaries, especially at night; a close, warm room

feels very oppressive; patient wants to walk about after sitting a short time, and craves cool air. A dose of the indicated remedy every one or two hours.

Hot fomentations of hamamelis to the abdomen are very soothing, also belladonna or hamamelis cerate gently rubbed into the abdominal muscles. Lying down in a perfectly quiet room is beneficial to nervous patients. Noise, confusion and excitement should be avoided.

After-Pains.

WHEN the child is delivered the uterus should, and generally does, contract promptly. By this means the after-birth and clots are expelled, hemorrhage is prevented, and the return of the uterus to its usual size hastened. Sometimes the contractions of the uterus causes much pain, and there is also always some soreness of other muscles concerned in the expulsion of the child. These after-conditions are greatly relieved by the appropriate remedy. After-pains do not cause a rise of temperature, rapid pulse, and distention and tenderness of the abdomen, thus distinguishing them from inflammation of the peritoneum which does.

Arnica.—Unless some other remedy is plainly indicated *Arnica* should be given immediately after labor to prevent pains, and relieve the sore, bruised feeling in the muscles. A drop of the tincture in a teaspoonful of water every half hour to one or two hours.

Caulophyllum.—Especially suitable after protracted and exhausting labor, with spasmodic pains across the lower part of the abdomen extending into the groins. Give as above, but should not be administered in cases where there is much flow of blood.

Pulsatilla.—After pains too long, or too violent, or causing faintness, pains worse towards evening, in mild, tearful women; symptoms better if the room is cool. A dose every one or two hours.

Nux Vom.—Aching pains which cause frequent desire for movement of the bowels, with feeling of something in the rectum; soreness in the uterus so that there is a dread of being moved or touched for any purpose; irritability; patient wants to be well covered and have the room warm. Give as above.

Also *Belladonna* when the pains are of a severe, forcing character as if everything would be forced out of the vagina; pains that come and go suddenly; the least jar of the bed distresses patient greatly. A dose every half hour to one or two hours. *Gelsemium* is also highly recommended.

In case clots are retained in the uterus, pressure with the hand over that organ will favor their expulsion. Hot applications of

arnica in water are soothing. Half a teaspoonful of calendula tincture to half a pint of hot water injected in that passage, and sterile gauze wet with the same may be applied to the vulva.

Difficult Urination.

AFTER labor there may be retention of urine or difficulty in urinating. The tendency to this condition can be lessened by encouraging a woman to make water as often as she has the slightest inclination before labor. The bladder will then not require to be emptied for several hours, during which the normal control of it may be regained.

Hyoscyamus.—Nervousness and irritability; desire to urinate, but bladder seems to be paralyzed.

Belladonna.—Retention of urine, or great difficulty in passing even a small quantity of urine; sensitiveness of the bladder to pressure, and pain on being jarred or moved.

Other remedies may be consulted under "Retention of Urine." A dose of the indicated remedy every half hour.

While it may be necessary to draw off the urine by a catheter, this should be avoided if possible. Pouring warm water over the genitals may start the flow of urine, or the sound of water running from a faucet or poured from a pitcher may stimulate the action of the bladder. A woman should make one or two attempts at least to urinate within the first six or eight hours after delivery, as a greatly distended bladder renders evacuation of its contents more difficult.

Sore Nipples.

FRICTION of the child's mouth in nursing, the softening action of the milk on the skin, or exposure to cold while the nipples are moist or warm not infrequently causes soreness, abrasions, cracks or at least sensitiveness of the nipples. These conditions should receive prompt attention otherwise ulceration may result, and even abscesses form.

Agaricus.—Much itching and burning of the nipples which look very red; especially for women with the above symptoms who are subject to chilblains.

Graphites.—The nipples seem to have little vesicles on them which ooze a thick, glutinous fluid, forming acrust, or are painful, inflamed, cracked.

Mercurius Viv.—The nipples feel very *raw* and *sore*; the glands in the neck are enlarged; the gums sensitive, and the teeth sore.

Phytolacca.—Sore and fissured nipples, with intense suffering on putting the child to the breast; pain seems to start from the nipple and radiate over the whole body.

Also in the very first days of nursing give *Arnica* if the nipples feel sore and bruised. *Calcarea Carb.*—Ulceration of the nipples, and

discharge of pus, especially in fair, fleshy women, who perspire easily. *Sepia*.—Deep, very sore cracks and cracks across the crown of the nipples. A dose of the indicated remedy every two hours.

Prevention is an essential part of treatment, and proper care of the nipples during the last months of pregnancy will do much to save subsequent discomfort. Pressure of the corsets or clothing must be avoided; during the last month or two apply frequently alcohol and water equal parts, with ten per cent. of alum added; draw out flat nipples daily.

During nursing wash the child's mouth with boracic acid solution; wash the nipples with calendula and water after every nursing, and dry thoroughly. When there are slight cracks, apply hydrastis powder or a solution of alum or tannin; excoriations may be painted with compound tincture of benzoin; deep cracks touched with one to five per cent. nitrate of silver, then covered with a film of absorbent cotton sealed with collodion. *Always wash off any preparation before giving the child the breast.* A rubber shield may be used to protect the nipples.

Inflammation of the Breast.—Broken Breasts.— *Mastitis.*

INFLAMMATION of the breasts is commoner in blondes than brunettes, and occurs in five to six per cent. of nursing women. "Poor health" is a predisposing cause, also congestion of the milk glands, and excoriations of the surface allowing infection by bacteria or germs. The inflammation may be superficial or involve the deeper structures of the breast. In severe cases chill, high temperature, and pain are marked symptoms, as well as heat, tenderness, pain, swelling, hardness and even suppuration in the affected breast.

Bryonia.—Breasts heavy, hot, hard and painful, but not very red; breasts gorged with milk; stitching, drawing pains; patient feels sick on sitting up even in bed; great thirst for large quantities of water; lips rough and dry; constipation, with dry, burnt looking stools.

Belladonna.—Heavy, swollen, hot and painful breasts, with red streaks running like the spokes of a wheel from a central point; tearing pains; fever; waking suddenly or starting up in sleep.

Phytolacca.—Chill; fever; marked hardness and sensitiveness of the breast from the beginning; nipples tender; caked breast; hard, painful lumps in the breasts; pain during nursing extending from the breast throughout the body.

Hepar Sulph.—When pus forms; sharp stitching pains; breast very sensitive to touch; faintness from pain; free perspiration without relief.

Mercurius Viv.—Breasts swollen, hard and painful; feel sore and raw; the milk is poor, and baby refuses to nurse; soreness of the teeth, gums and tongue.

Also *Phosphorus* in inflammation with night sweats; breasts red in spots or streaks, with hard lumps; small openings with watery, offensive, ichorous discharge. *Silicea*.—Ulcers that constantly discharge and refuse to heal; the substance of the breast seems to be discharged with the matter formed. A dose of the indicated remedy every one to three hours.

As soon as hardness appears or any sign of swelling or heaviness the breast should be supported by a bandage. Too much milk may be withdrawn by the breast pump or massage; hardness relieved by massaging with olive oil, stroking toward the nipple. Hot fomentations of flannel wet in phytolacca tincture and hot water, a drachm to a pint, or antiphlogistine warm, will relieve inflammation. To prevent engorgement of one breast, the child should nurse from both. The general health must receive attention.

Milk Fever.

WITHIN the first two or three days after labor the secretion of milk in the breasts is established, and often with some constitutional symptoms such as feverishness, increase in the pulse rate, general sense of discomfort, more or less distention of the breasts. This condition is known as milk fever, and quickly subsides in normal cases with the free flow of the milk.

Aconite may be given in the beginning for the feverishness, or *Bryonia* when the milk is secreted slowly, and the breasts seem much engorged, with a tendency to inflame. As a rule no other remedies will be required, but *Pulsatilla*, *Asafoetida*, *Belladonna*, or *Calcarea Carb.*, may be called for, the indications for these remedies being given under "Scanty or Excessive Secretion of Milk."

Scanty or Excessive Secretion of Milk.

Too little milk may be due to excessive nervousness, grief or fright, or to poor nutrition of the mother. Attempts to increase the flow of milk should not include the resort to alcoholic stimulants, but should be directed to improving the general health by an abundance of simple, nourishing food, especially milk, and by good hygiene, plenty of sleep, fresh air, etc.

Too much milk may be due to excessive activity of the digestive functions in robust women of great vitality, or may equally occur

in "run down" women. In the latter case the milk is poor, thin, and will not nourish the child. Excessive lactation often occurs when nursing is prolonged unduly, and when conception takes place while a woman is still nursing her baby. Headache, vertigo, insomnia, debility, emaciation, etc., result.

Calcarea Carb.—Poor milk, although profuse in quantity in fair, fleshy or flabby women; also scanty milk supply in women of the same type, inclined to too frequent and profuse menstruation, and with cold, damp extremities.

Pulsatilla.—Often called for when there is too little milk in mild, tearful women apparently in good health, or when the milk is profuse, thin and watery; feverishness but no thirst; fatty, rich food disagrees; the patient craves cool air.

Belladonna.—Scanty milk supply; breasts large and heavy; headache; eyes red; face flushed; no sound sleep, but a half-waking, half-sleeping condition.

Sulphur.—Excessive secretion of milk in poorly nourished, low-spirited women, who complain of frequent weak faint spells.

Also *China*.—Scanty milk in women who have lost much blood, or who are greatly debilitated, with flatulence, indigestion, dizziness, and ringing in the ears. *Asafoetida*.—Excessive sensibility and nervousness; sometimes hysteria; lack of milk, although breasts are enlarged, and veins distended. A dose of the indicated remedy every three hours.

As has already been said, the general nutrition must be improved when there is a scanty milk supply; a strong decoction of the castor oil plant, applied warm to the breasts seems to stimulate the secretion of the milk. Excessive secretion of milk also calls for attention to the general health. When the milk is of poor quality the child must have a wet nurse or be weaned. A moderately firm bandage put on over absorbent cotton, should be applied to the affected breast to secure compression and give support.

Bleeding After Labor.—*Post-Partum Hemorrhage.*

WHILE it may be reasonably assumed that the average woman in labor will have the attendance of a physician, it is by no means uncommon for a woman to give birth to a child without having medical aid. Serious hemorrhage following labor is fortunately not the rule, but the exception, nevertheless when such an emergency arises the attendant must be prepared to act promptly and effectively.

The local treatment recommended is of the greatest importance, but should be supplemented by internal medication which will prevent a recurrence of excessive flowing.

Ipecac, 3 x.—Constant flow of bright red blood; cutting pains about the navel; constant nausea and vomiting; the patient feels cold; is very pale; gasps for breath; complains of dizziness and headache; every effort to vomit causes blood to flow with a gush. The leading remedy.

China.—The uterus does not contract; flow not so bright as that calling for ipecac, but very profuse; also paroxysmal discharge of clots of dark blood; coldness and blueness of the skin; yawning; faintness; dizziness; ringing in the ears.

Secale.—Hemorrhage of dark blood in debilitated women; slightest motion aggravates the flow; strong contractions of the uterus, every gush of blood being preceded by a contraction or by bearing down pains; patient prostrated, and takes little note of her condition.

Sabina.—Dark blood, with blackish clots, mixed with watery blood; painless loss of blood after miscarriage or normal labor; pain in small of back extending round to the lower part of the abdomen; uterus does not contract. To be thought of when ipecac is not indicated.

See also *Trillium* and *Belladonna* under "Profuse Flow of Blood from the Uterus." A dose of the indicated remedy every ten minutes to one hour.

The bone above the external genitals is called the pubic bone or the pubes. Above this will be felt the uterus, and by placing the hand on it after labor, muscular contractions should be felt. When the uterus is relaxed, however, and bleeding is going on, grasp it firmly with the right hand, with a sort of kneading pressure. This will aid it to contract and expel blood clots, etc. Dip the hand first in cold water if there is time. If there are clots in the vagina, gently insert the other hand and remove them. The following directions should also be followed: remove pillows from under the patient's head; lift up the foot of the bed two or three inches and rest it in chairs; put cloths wrung out in ice water over the abdomen and change them frequently; if bleeding persists, push a lump of ice the size of a hen's egg well up in the vagina, or if ice is not at hand, fill a bulb syringe with vinegar and inject it into the vagina, or give a copious hot douche, two or three quarts with a fountain syringe, temperature 115° to 120°, *determined by a bath thermometer*. Putting the child to the breast frequently stimulates contraction of the uterus. Perchloride of iron, one ounce to ten ounces of water, may be used as a final resource, to be given after the hot water douche.

Child=Bed Fever.—*Puerperal Fever.*

THE introduction of septic germs into the wounds of the birth canal during or after labor causes a dangerous condition known as

puerperal fever. The hands of the physician or nurse, unclean instruments or cloths most frequently convey this infection. The disease is described at length earlier in the book. The most conspicuous early symptoms are chill, free perspiration, rapid pulse of 100 to 140; rise of temperature, 102 to 104 degrees; often bad-smelling lochia, as the discharge from the uterus is called, and pain in and tenderness of lower abdomen.

Aconite.—Chill, followed by high fever, with hot, dry skin; quick, hard pulse; mouth and tongue dry; great thirst; may be vomiting; urine scanty, red and hot; cutting, burning, shooting pains in the lower abdomen, which is hot to the touch, and very sensitive to slightest pressure.

Veratrum Vir.—Give early when there is nausea and violent vomiting, with empty retching; much congestion of the head; full, hard pulse; may be substituted for *Aconite*.

Belladonna.—Intense congestion; rush of blood to the face and head; painful retching and vomiting; abdomen so sore, sensitive and painful the weight of the bedclothes cannot be borne or the slightest jar or motion; vaginal discharge suppressed; painful bearing down in the pelvis; eyes red; throbbing headache and delirium.

Bryonia.—Peritonitis, with stitching, cutting pains in abdomen, worse from slightest motion; lochia suppressed; great thirst; cutting pains in the stomach, with distention, and sensitiveness to pressure.

Arsenicum.—Sudden sinking of strength; cold, clammy perspiration; constant thirst and vomiting; diarrhœa; burning pain in the abdomen; great anguish and restlessness; rapid prostration. A dose every half hour.

Veratrum Album.—Serious cases, sudden and rapid in their development and with threatened collapse and speedy death; violent vomiting and diarrhœa; suppressed lochia; icy cold extremities; face pale, sunken, cold; cold perspiration. A dose every fifteen minutes to one hour.

Consult the remedies in the section on "Inflammation of the Uterus." A dose of the indicated remedy every one or two hours unless otherwise specified. The local treatment is outlined on page 409, but these cases require the service of a competent physician whenever obtainable.

Suppression of the Lochia.

THE lochia are the genital discharges which follow labor, are more or less bloody for four or five days, and contain shreds of tissue, then become more watery, and finally creamy like an ordinary vaginal discharge. The lochia last from two to four weeks in normal cases.

From some disturbance of the system the lochia may be suppressed, or become offensive, with general symptoms showing that an abnormal condition exists. Prompt treatment is desirable, also when the discharge continues so long as to affect the general health.

Aconite.—Suppression of the lochia, or a too scanty discharge, occurring soon after confinement, with distress in the abdomen, chest and head; feverishness, with thirst; much uneasiness, anxiety, and restlessness; suppression from fright.

Belladonna.—Offensive lochia which feel hot in passing; flushed face; pain in the uterus, and great sensitiveness to touch or any jar; drowsiness, but no sound sleep; bad dreams; may be delirium.

Bryonia.—Suppression of the lochia, with sensation as if the head would burst; worse from the slightest motion; thirst for large quantities of water at a time; mouth and lips very dry.

Nux Vom.—Scanty and offensive lochia in women accustomed to highly seasoned food, coffee and wine, with constipation; irritability of the bladder.

Pulsatilla.—Scanty or suppressed lochia with failure of milk in the breasts; feverishness, but no thirst.

Also *Calcarea carb.* when the lochial discharge is milky, and lasts too long in women who ordinarily menstruate profusely.

Rhus Tox.—Thin, offensive, ichorous, persistent lochia causing much exhaustion; shooting pains up the rectum; much restlessness at night. *Cimicifuga.*—Suppression of the lochia from cold or emotion. *Colocynth.*—Suppression from anger; suppression with violent colic.

A dose of the indicated remedy every three hours. The vagina should be cleansed twice or three times a day by hot water douche, see section on "Leucorrhea."

Milk Leg.—*Phlegmasia Alba Dolens.*

Two or more weeks after delivery, there may be pain and swelling in one of the lower limbs preceded by a chill. The cause may be an extension of the inflammation from around the uterus through the lymphatics, or some clot in the pelvic veins. Whatever the cause, which is not always discoverable, the limb becomes swollen, tense, hard, white, glistening, and the veins distended like hard, irregular cords, with frequently a lumpy feel. An abscess or gangrene may follow.

Aconite.—Fever; high temperature; rapid pulse; restlessness; much thirst.

Belladonna.—Cutting pains, or sharp, shooting pains, aggravated by the least jar or motion; fever with burning thirst; throbbing of the arteries in the neck; eyes bloodshot.

Pulsatilla.—Pale swelling in the foot and limb; suppression of milk; *no thirst*; bad taste in the mouth, especially after sleeping; the sufferer craves fresh, cool air.

Hamamelis.—Inflammation of the veins about the uterus, extending to the veins of the leg.

Also *Arsenicum* when there is much pale swelling; burning pains; great restlessness, every motion causing a feeling of exhaustion; thirst for frequent sips of cold water. A dose of the indicated remedy every one or two hours.

The leg should be kept at rest in a horizontal position, and elevated on cushions so as to be slightly higher than the thigh. Hot applications of hamamelis and water should be made, covered with absorbent cotton and oiled silk, or apply ichthyol and glycerine, 1 to 4, twice a day. Not until inflammation has wholly subsided should massage be given or a bandage or elastic stocking used. The latter is then advisable until all swelling has disappeared. Keep the bowels open, and drink plenty of soft water.

Surgical Diseases.

Concussion of the Brain.

CONCUSSION is a sudden interruption of the functions of the brain owing to a blow or other mechanical injury. It is more than probable that in most cases of concussion injury is received by the brain tissue. Slight concussion may cause the patient to lose his balance and fall, become pallid, confused, and giddy, possibly be nauseated and vomit, but after a period of rest he will gradually recover. In more severe injury the injured person will fall and lie quietly, the heart's action will be feeble and fluttering, the skin cold and clammy and unconsciousness ensue, from which he can be at least partially aroused as a rule; urine and feces may be discharged involuntarily, sometimes convulsions ensue. Returning consciousness, which usually takes place within twenty-four hours, is generally accompanied by vomiting; but stupor, called coma, or meningitis may occur, or eventually abscess of the brain, epilepsy, or insanity.

Arnica.—This remedy takes the first rank in concussion of the brain, as it seems to act directly upon the lacerated brain tissue and ruptured blood vessels; there is aching, soreness, vertigo and nausea if the patient is conscious; in unconsciousness the feces and urine may be passed involuntarily. A dose every hour.

Opium.—The injured person is in a profound stupor, but can be aroused for a moment by being spoken to in a loud tone of voice, then relapses into his former condition; extremities and face bluish or livid; loud, labored respiration, and coldness of the skin. Give as above.

Camphor.—When opium fails, and there are signs of collapse; cold hands and feet; cold, clammy sweat; trembling tongue, and trembling of the hands when raised; retention of the urine; weak pulse. A dose every fifteen minutes to one hour.

Put the patient in bed as soon as possible, without any pillow; surround him with hot water bags, taking precautions against possible burns; apply mustard plasters to the calves of the legs; do not give alcoholic stimulants, but if a stimulant is necessary a ten drop dose of aromatic spirits of ammonia in water.

Severe jars of any kind or a hard blow on the head may produce very serious injury. At first there is only a general bruised feeling and lameness, but often this does not wholly pass away or else returns whenever the person is tired, and there may be trembling of the limbs, general prostration, and often the eyes look somewhat dull and sunken.

It will prevent much future trouble in these cases if, when no injury to the bones of the spine or any organ is discoverable, *Hypericum* in five or ten drop doses of the tincture is administered at once, twice or three times a day.

When there is any local inflammation or congestion, as may happen when concussion is from a blow, *Arnica* may be given.

Rest, treatment by electricity or massage are helpful in these cases when the symptoms show a tendency to become chronic.

Sprains and Strains.

IN a sprain there is a sudden wrench or twist of the tendons or ligaments, with frequently complete or incomplete rupture of some of their fibres. A strain may be more or less severe, and affect the muscles in any part of the body. A sprain may be complicated by a fracture or dislocation; generally a broken bone can be detected by touch, but when there is a fracture in the ankle of the articulating surface of one of the ankle bones it cannot be discovered by touch. This explains many cases of stiff joints after sprains.

The pain of a strain is instant and severe, and often attended by faintness; then follows swelling, with discoloration later on and weakness and stiffness on the part. Often the patient cannot bear any weight on the injured limb for several days, or even move it, without pain.

Arnica.—Recent sprains or strains, with a bruised appearance and bruised, sore feeling; swelling and puffiness.

Rhus Tox.—When the tendons are injured; especially when the joints feel stiff and paralyzed, either from sprains, over-lifting or over-stretching; lameness, stiffness and pain on first moving after rest, better on continued motion; trembling in the limbs.

Calendula.—In place of *Arnica*, for patients peculiarly sensitive to the latter drug, and in whom it causes skin eruptions.

Ruta.—Lameness after sprains, especially of the wrists and ankles; fluid in the joints due to strains; especially after sprains and strains in persons subject to rheumatism. A dose every three hours.

A dose of the indicated remedy every one or two hours. Immerse the injured part in water as hot as can be borne for half an hour, then apply gauze or cheese cloth wet in arnica or calendula tincture, cover with absorbent cotton and bandage firmly, exerting an even pressure. When it is impossible to keep the injured limb at rest, splints should be applied, or the joint strapped with straps of adhesive plaster. After swelling and inflammation subside, massage with arnica or calendula oil is highly beneficial, and friction and passive motion of the parts to prevent stiffening of the joint. While inflammation and swelling continue, the limb should be elevated. Use cold salt water baths with friction for a weak back or weak ankles; bandaging the latter may be required for support.

Fractures and Dislocations.

AFTER the reduction of a dislocation, and to alleviate pain and soreness, compresses wet with arnica or calendula tincture and water, one to ten, may be applied. *Arnica* may be given internally, or when fever and restlessness follow the breaking or dislocation of bones, *Aconite* will prove serviceable.

There are two remedies very helpful when the ends of broken bones are slow in uniting, one of these is *Calcarea phos.* especially suited to fair, fleshy persons of a lymphatic temperament, and to those of a scrofulous tendency; there is no formation of new bone cells or tissue about the ends of the bones. *Symphytum* is another excellent remedy, especially in fracture of the knee pan or of the thigh bone, or where some disturbance of nerve nutrition or of the nervous system is the apparent cause of lack of union.

Although the subject of fractures and dislocations is ably discussed elsewhere, emphasis is again laid on the important point that a person with a broken arm or leg should not be moved without some support being given to the injured member. If there is no board or similar substitute to which the broken limb can be fastened, bind a leg to its fellow, or place an arm in a sling. A fracture where the soft parts and large blood vessels are uninjured, may often be made a complicated one by carelessness in moving the patient.

Wounds.

A CLEAN-CUT wound is termed incised; one made by some pointed instrument, punctured; one with ragged edges, lacerated; one caused

by bruising the parts as with a blunt instrument, with little or no abrasion of the surface, contused.

Aconite.—High fever; full, rapid pulse; restlessness and anxiety following injuries, and accompanied by inflammation of the parts. It takes the place of the old method of “bleeding” and is far superior to it in relieving congestion.

Calendula.—Torn, ragged wounds, or when a portion of the flesh has been torn away; to prevent suppuration, and hasten healing.

Arnica.—Bruises; black and blue spots; contused wounds, with effusion of blood to the surface; bruised sore feeling; injuries where clots form; congested or black eyes, etc.

Hypericum.—Punctured or crushed wounds; gunshot wounds; crushed finger or lacerated wounds of the fingers or toes; severe, constant pain indicating injury to the nerves; also a preventive of lockjaw in wounds of the sole of the foot or palm of the hand as from a nail.

A dose of the indicated remedy every one to three hours. A slight cut should be washed in cold water, and a small piece of calendulated court plaster applied when the bleeding ceases. If bleeding continues, use styptic cotton.

Deeper cuts should be washed clean with gauze or soft cotton cloth freely wet with some antiseptic such as listerine and water, one part of the former to four or five of the latter, or bichloride of mercury 1 to 2,000, and narrow strips of adhesive plaster applied to hold the lips of the wound together; cover with a pad of styptic or absorbent cotton, and bandage firmly. In changing a dressing, soften the old one with an antiseptic wash; remove gently, and make an entirely fresh application.

In case of a wound made by a rusty nail, encourage bleeding by placing the injured part in warm water; dress with a pad of lint or gauze wet with ten or fifteen drops calendula or hypericum tincture to an ounce of water, and bandage.

Bleeding from Wounds.—Hemorrhage.

BLEEDING from wounds requires prompt local treatment. *Arnica* or *Calendula* may be given internally, but no remedy given in this way lessens the necessity for immediate attention to the wound itself. After there has been excessive hemorrhage *China* is recommended as an admirable remedy for the debility, faintness, dizziness and nausea caused by the loss of blood.

Bleeding from a vein can be checked by a stream of cold or very hot water; by ice, pressure, and elevating the part. *Blood from a vein is dark, and flows steadily; blood from an artery is bright red, and*

spurts out in jets. In the latter case, lose no time. If a limb is injured, grasp it firmly above the wound, *i.e.*, on the side nearest the heart; apply at this point a knotted handkerchief, or a strong strip of cloth, bringing the knot over the artery. To tighten this improvised tourniquet, insert a stick in the knot and twist it about, once or twice. Summon surgical aid. Water at 120° F. is of great value on bleeding surfaces. Powdered alum or tannin will also arrest bleeding.

Contusions.—Bruises.

BRUISES may often prove very painful, and a blow on a portion of the body but slightly protected by soft tissues, such as the skin, may injure the bone itself, and set up an inflammation in the tissues covering it. Cold applications may be made to an ordinary contusion, and if possible before any discoloration takes place. To ice cold water add one-tenth the amount of tincture of arnica or calendula, or use as a lotion a solution of chloride of ammonium, five grains, to one ounce of alcohol. Extract of witch hazel, as hamamelis is popularly called, is soothing and healing. Do not make ice cold applications to very severe contusions as there is danger of deadening the skin; hot applications are better, and the lotion mentioned above. Do not allow wet compresses to become dry.

A blow on the breast does not cause cancer as many persons suppose, but it does render the tissues susceptible to degenerative changes so that abscesses or tumors may develop. Compresses wet with tincture of conium and water, the same strength as arnica lotion, should be applied. This is a valuable remedy taken internally in swelling, soreness and pain in the breasts, and when hard lumps form.

A kick or blow on the shin should be promptly treated, and when the bone feels sore, *Ruta* should be taken internally, and applied externally also.

Injury to a Nerve.

THERE are several injuries a nerve may sustain that will call for special treatment. A nerve may be divided by wounds; lacerated in fractures; compressed by dislocations, tumors, new growths of bone tissue where the ends of a broken bone are uniting, or by faulty postures. It is of great importance to find out the cause of inflammation of a nerve, because unless that is removed no remedy can be expected to cure the condition.

Arnica.—In simple injury, especially at an early stage, and when in the nature of a bruise or compression. A dose every two hours.

Hypericum.—In chronic cases or cases due to lacerated wounds, with intolerable excruciating pain showing that the nerves are severely injured, or after punctured or crushed wounds, or in acute pain after surgical operations, especially amputations, when no easing of the dressings seems to give any relief.

Arnica, hypericum or calendula tincture may be applied as a lotion externally, twenty drops to half a cupful of water, in connection with the use of the same remedy internally. Calendula externally should be substituted for arnica in torn, ragged wounds.

Shock.

AFTER bad accidents, falls, wounds, fright, or following surgical operations, shock to the nervous system is a common and dangerous condition. The symptoms are those given in the indications for the following remedies. Those for *Aconite* will be found under "Burns and Scalds."

Veratrum Album.—Face cold and sunken; cold sweat on the face, and all over the body; pulse rapid or slow; feeble, irregular, intermittent, hardly to be felt.

Carbo Veg.—Face blue, body cold, especially below the knees to the feet; cold sweat on the limbs; pulse intermittent and thready.

Camphor.—Sudden and rapid prostration, with tendency to collapse from shock; icy coldness of the body; very weak pulse.

If there is bleeding from a wound it should be arrested, as directed under "Wounds." The patient should be covered with blankets; the head kept low; hot water bottles or hot bricks placed near the body, care being taken to avoid burns; a small quantity of whiskey or brandy given by mouth if the patient can swallow, or hot black coffee, or twenty drops of aromatic spirits of ammonia, or strychnia 1-50 grain. Subcutaneous injections are absorbed more rapidly.

Bites and Stings of Insects.

THE best remedy to use both internally and externally is ledum, especially for mosquito bites, a drop of the tincture in a teaspoonful of water every half hour internally; one part tincture to ten parts water externally. If there is much puffiness and swelling, with persistent itching, try *Apis*.

Remove the sting if possible. This may generally be accomplished by pressure with a key, the hollow barrel of which should be placed over the sting. Apply lint or absorbent cotton soaked in ledum or ammonia. If nothing else is at hand, cover the bite with a piece of raw onion, or wet fresh clay or earth. Oil of pennyroyal or spirits of camphor rubbed on the face and hands will often drive away mosquitos.

Wry Neck.—*Torticollis*.

FROM exposure to draughts or damp weather, the muscles of one side of the neck may contract rheumatism, and become hard, rigid, very painful on motion, and sensitive to touch; the head may be drawn to one side. This condition is rheumatic torticollis, and there are other forms, one existing at birth when there is shortening of the muscles on that side of the neck, and others due to diseases of the nervous system, injury to the parts, etc. The treatment suggested is chiefly for rheumatic torticollis.

Aconite.—From a draught or chill; tearing pains in the nape of neck, extending to shoulder, worse on motion; especially for recent cases.

Bryonia.—Painful, stiff neck, worse from touch or motion, in rheumatic subjects or in damp weather.

Cimicifuga.—Fixed, voluntary position of the head; rheumatic pain and stiffness in muscles of neck and back; sensitiveness of spine.

Dulcamara.—From damp, cold, and wet; pain in the nape of the neck, as after lying with the head in an uncomfortable position.

A dose of any of the above mentioned remedies every one or two hours. Also *Gelsemium* in wry neck, with muscular pains from the spine to the head and shoulders; bruised sensation; congestion of the spine; prostration and languor. *Strychnia Phos.*—Nervous cases, with much debility, impoverished blood, and digestive disturbances. A dose three times a day.

In rheumatic torticollis, wear a flannel about the neck; running a hot iron over several layers of flannel is beneficial, or friction using a lotion made of equal parts of capsicum and glycerine.

Goitre.—*Bronchocele*.

GOITRE is an enlargement of the thyroid gland in the neck not dependent upon inflammation of malignant formations. The tumor that forms may be on one or both sides, is not painful or tender, and varies in size under different bodily conditions. The disease occurs more often in women than in men, and in localities where the water is impregnated with lime salts. Breathing and swallowing may be interfered with in some cases.

Iodine.—Recent and soft goitres especially. This is the leading remedy, and the affected part may be painted with the tincture.

Spongia.—Thyroid gland swollen and hard with suffocative attacks at night.

Also in goitre in syphilitic persons *Mercurius Iod.* or *Kali Iod.* will be found useful. A dose of the indicated remedy two or three times

a day, and its use persisted in for months. Galvanism has benefited many cases in young persons. Boiled or soft water should be drunk. Surgical interference may be called for, or injections of iodine, or the introduction of the electric needle.

Hernia or Rupture.

THE different forms of hernia are described at length earlier in the book, with the treatment commonly resorted to by skillful practitioners of all schools. Medicines are of secondary importance in these cases, and local treatment should never be neglected. There is always the danger that a simple protrusion of the bowel may become irreducible, and strangulation and even gangrene take place. Internal remedies are helpful in infantile hernia, and in cases where there is constriction due to inflammation or spasmodic contraction of the muscles.

Aconite.—Strangulated hernia; inflammation, with burning pain in the affected part; vomiting of bile; great anxiety and cold sweat.

Belladonna.—Intense local inflammation, the tumor being exceedingly sensitive to the touch.

Nux Vom.—Feeling of weakness in the abdomen on rising in the morning; constipation; strangulation, with vomiting or nausea, or both; indications of approaching gangrene with green or yellowish-green spots on the tumor.

Also *Plumbum* when *Belladonna* and *Nux* have failed to relieve the above symptoms, and there is intense pain.

It may be emphasized that attempts at reduction of a hernia should always be gentle, not continued more than fifteen minutes, and never made if gangrene is suspected; also that the part of the intestine that came out last is to be reduced first. A well fitting truss should always be applied to even a rupture that gives no discomfort. Men who are stout, or whose work is very laborious, and who have any weakness of the abdominal walls, should wear an elastic abdominal band or belt.

Inflammation of the Joints.—*Synovitis and Arthritis.*

INFLAMMATION may attack only the lining membrane of the joint cavity, the synovial membrane, or it may affect the bone, these parts having the most blood vessels which, in inflammation, become highly congested. A strain, a wound, or exposure to cold may be the exciting cause of inflammation, while gout, rheumatism, syphilis or tuberculosis frequently precede joint disease.

In simple acute cases there is redness, heat, pain on motion of the affected joint, a hard swelling which later on becomes filled with

synovial fluid; the latter contains material that may form bands of fibrous matter which will make the joint stiff. An acute attack may pass into the chronic form, especially in gouty or rheumatic persons.

In infective cases, as in rheumatic and gouty arthritis, the condition is more serious, for suppuration may take place, intense pain and tenderness, adhesions and deposits form, and even after acute symptoms subside, the joints remain swollen, enlarged and misshapen.

Arnica.—To be given at once after any injury to a joint, and a weak lotion of the tincture to be applied externally.

Aconite.—Acute cases, with moderate swelling, much redness and heat, pricking pain, high fever, with great restlessness.

Belladonna.—Joints bright red and swollen; cutting, drawing pain, skin very hot to the touch; great sensitiveness to touch or pressure, but can bear firm pressure better than light touch; high fever.

Bryonia.—Joints pale red, swollen, stiff, with stitching pains on the slightest motion; effusion of fluid; follows well after the preceding remedies. *Apis* may be given instead of *Bryonia* in scrofulous persons, with sharp, stinging pains, effusion, and much pale swelling of the joints.

Pulsatilla.—Erratic, shifting, tearing pains in the joints, and nearby parts, relieved by pressure, and generally better from cold.

Also *Iodine* or *Calcarea Carb.*—In cases of scrofulous makeup, tending to become chronic. *Sulphur* following the remedies given above to hasten absorption of the fluid in the joints.

Rest in bed is necessary, and keeping the affected joint quiet. Apply a flannel bandage, exerting moderately firm pressure. If there is a great deal of effusion, the fluid may have to be drawn off by an aspirator needle, and carbolic acid or boracic acid solution injected. Painting the joint with iodine or ichthyol will be beneficial.

White Swelling.—*Tubercular Arthritis.*

INFECTION of the joints by the tubercle bacillus may take place at any age, but is most common in young people. There is dull pain, worse by motion or jarring; tenderness on pressure; more or less swelling, and exudation of fluid; the joint grows rigid, the muscles above and below waste away, the skin becomes white and shining.

Calcarea Phos.—This is a valuable remedy in these cases, with crawling, tingling pains; progressive emaciation, weakness, and debility; symptoms better from rest and lying down; the swelling is white and waxy, and has a boggy or putty-like feel.

Silicea.—White swelling, with suppuration, and openings into the joint discharging pus or thin, offensive matter.

Also *Sulphur* in long lasting cases, which make no progress; sticking, drawing pains in the joints; cramp-like pains in the legs. *Mercurius*.—Especially in cases where there is a syphilitic taint, with tendency to complete destruction of the joint; aching, stabbing pains, worse at night and from warmth; free perspiration which does not relieve the pain. A dose of the indicated remedy three times a day, and its use persisted in.

The constitutional treatment is of the greatest importance in these cases. The system must be built up by an abundance of simple, nourishing food, cod liver oil, the malt extracts and hypophosphites; life out of doors must be sought; good ventilation indoors; bodily cleanliness, and warmth. The local treatment required is frequently surgical.

Burns and Scalds.

Aconite.—A valuable remedy immediately after bad or extensive burns, when there is intense restlessness, anxiety and fear of dying from the injury; the pulse being hard and frequent.

Cantharis.—Superficial burns, and when there is superficial ulceration; burns with great redness of the skin as in erysipelas; spasms in children after being burnt.

Urtica Urens.—Superficial burns, with intense burning, biting and crawling sensations.

Rhus Tox.—Deeper burns and scalds, causing many blisters, with tendency to matterate.

A dose of the indicated remedy every half hour to one or two hours. Superficial burns or scalds, in which the effect of the heat has extended only to the superficial layer of the skin, may be treated by the application of soft cotton cloth or absorbent cotton saturated with a solution of bicarbonate of soda, one drachm to one ounce of water, or with tincture of *urtica urens* one part to twenty parts water. A thick paste made of bicarbonate of soda and olive oil is an excellent application. Blisters may be evacuated by using a needle, which should first be cleansed in boiling water or the flame of a lamp, then allowed to cool. When pus forms, cleanse the surface with peroxide of hydrogen; iodoform or boracic acid may afterwards be used as a dressing. Calendula water and calendula oil are among the best healing applications. Consult the section on "Shock" for further remedies and treatment for the general condition.

Caries.—Necrosis.—Death of Bone.

IN caries the bone dies cell by cell; in necrosis the bone dies as a whole, that is a considerable portion of its structure softens, swells,

and mortifies. In ulceration or death of the bone an abscess forms and opens on the surface, discharging pus or other offensive matter. The treatment is chiefly surgical, but remedies are of great service in improving the constitutional condition.

Silicea.—Sticking, burning pains; then offensive ichorous discharge; much proud flesh; abscess openings which do not heal; discharge of particles of dead bone; hard lumps following suppuration.

Arnica.—Bruised, sore pain in the bones, skin red, hot, and swollen, tender and sore on pressure; better from warmth; disease of the bone following a fall or blow; should be given early.

Also *Aurum* with inflammation and ulceration of the bones; horribly offensive discharge; syphilitic cases. *Calcareo Phos.*—Ulceration of bones in fair, flabby persons of a scrofulous constitution.

Mercurius Viv.—Constant aching in the bones, sweating and exhaustion; swelling of the bones; abscess in the joints.

A dose of the indicated remedy three times a day. Surgical advice must be sought in these cases. Rest, drainage and the removal of diseased tissue are essential.

Bed Sores.

BED sores are due to pressure, especially on a bony portion of the body, generally from lying much in one position. The skin grows red, and if pressure is not relieved there will be increasing congestion and eventually ulceration. The principal remedy to be taken internally is *Arsenicum*. The symptoms of bad cases may be found under "Gangrene" for both *Arsenicum* and *Lachesis*.

Preventive measures are highly important. In order to prevent bed sores, tuck the bottom sheet in tightly on all sides; keep it smooth and free from wrinkles and crumbs. Bathe the parts night and morning, where pressure comes, with equal parts of alcohol and water; dry the skin thoroughly, dust on a little powdered starch. If the surface shows much redness, or signs of breaking down, use boric acid or calendula in powdered form, instead of starch.

Remove pressure by frequently changing the patient's position; by rubber rings, and other air cushions and pillows. Never permit a patient to lie on a feather bed if it can by any means be avoided. Cleanse a bad bed sore with peroxide of hydrogen or use as a wash fluid extract of calendula, a teaspoonful to half a pint of water previously boiled. Sterilized gauze may be used as a dressing.

Gangrene.—Mortification.

GANGRENE or death of the soft tissues, may be moist or dry, the latter being due to arterial disease where the supply of blood to the

part is cut off, the skin shrivels, becomes pale, white, semi-transparent, with specks of a bluish mottled hue, then grows opaque, dark, and mummified. Dry gangrene is most often seen in the aged, or in thin, scrawny, emaciated persons, or those having syphilis or scrofula.

With moist gangrene there is always more or less decomposition; the part is engorged with blood from some obstruction to circulation; the skin is dark and livid, the tissues soften and break down. This condition may occur in diseases of the heart or kidneys, during fevers, after injuries or surgical operations, long continued intemperance, privation, etc., also from pressure as in bed sores, extreme cold. The whole system is affected in cases of gangrene, as will be seen from the symptoms mentioned in connection with the remedies.

Arsenicum.—When the invasion of the disease is sudden, and particularly in dry gangrene in old persons; much burning pain, felt even during sleep, with great and increasing prostration; also in extreme cases with impending collapse, diarrhoea and sweating; anxiety; much thirst, but drinks little; pulse small and thready.

Lachesis.—Great putridity of the diseased part; bloody, putrid, thin discharge; patient's system saturated, as it were, with the poison; pulse irregular and weak; skin cold; temperature may fall below normal (which is 98.5°); torpor or delirium; gangrenous part black, foul, blistered.

Secale Cor.—Painless, dry, chronic gangrene; gangrenous part cold, bluish, and may be blistered; numbness of the limbs; debility and restlessness; particularly useful in tall, scrawny women, without muscular development or who are feeble and bloodless.

A dose of the indicated remedy every three hours. The patient should stay in bed and receive all the concentrated nourishment he can digest, broths, milk, egg nogg, meat juice, coffee and egg, raw eggs, soft boiled or poached eggs, scraped beef, etc. The affected part should be kept at an even temperature; powdered willow charcoal may be used in superficial cases. The services of a good surgeon should be secured. As a wash, use peroxide of hydrogen, or bichloride of mercury 1 to 5,000. In severe cases moist corrosive sublimate gauze or moist iodoform gauze may be used as a dressing; dressings should never be too moist, or allowed to remain many hours without being changed.

Bunions.

A BUNION often becomes not only large, but also sensitive and painful. Well fitting, easy shoes and stockings not too small are necessary. Surgical interference may be necessary. Compresses wet with calendula may be applied at night, covered with absorbent cotton or oiled silk, and held in place by a light bandage.

Antimonium Crud.—Skin hard, horny, smooth, and slightly discolored; pricking sensations in the part, or no feeling at all; often callous spots on the soles of the feet, sensitive on walking; the nails split or grow out of shape.

Apis.—Inflamed bunions, which seem to fluctuate under the fingers; biting, stinging sensations; the skin thin and reddened.

Arsenicum.—Dark color, generally bluish, with much fluid in the part, and intense burning; better from warm applications.

Silicea.—Hard, bony enlargement; sticking pains or much itching; feet smell bad; ingrowing toe nails; may be offensive foot sweat.

Sulphur.—Feet burn but are cold to the touch; patient wants to keep them uncovered; hard or soft inflamed bunions, with crawling sensations; aching, sticking pains in the toes.

Diseases of the General System and Miscellaneous Diseases.

Asiatic Cholera.—*Epidemic Cholera.*

THIS germ disease is well described on page 362. The symptoms to be especially emphasized as characteristic are vomiting alternating with painless diarrhœa, the stools becoming like rice water, and very frequent and sudden; excruciating cramps in the calves of the legs and abdomen with knotting of the muscles; the face grows old as if by magic, pinched, blue, and sunken; the tongue cold and bluish; the eyes glassy; pulse thready and weak; voice hoarse; skin of a clammy coldness; then comes a partial or complete cessation of vomiting, an entire collapse of the vital forces, and death. Recovery, however, may and often does take place, and under no treatment more frequently than the intelligent and prompt use of homœopathic remedies.

Camphor.—Early in the attack; immediate prostration; body cold; voice husky; face pinched and blue; skin shriveled; anguish and distress at the pit of the stomach, and burning in the bowels; watery diarrhœa, sometimes slight; may be some vomiting. Two or three drops in sugar every five or ten minutes, at the same time rubbing camphor on the neck, chest and abdomen until reaction takes place.

Veratrum Alb.—Cases marked by excessive vomiting and purging, with violent abdominal pains; eyes sunken, with blue rings around them; cold sweat on the forehead, very profuse, flaky, frequent, rice-water evacuations; violent colic, especially about the navel. Five drops of the tincture every fifteen minutes, increasing the intervals as patient improves.

Arsenicum.—Sudden and great prostration; anguish; violent thirst, with vomiting of least quantity of liquid; difficult breathing; burning in stomach; pulse small and vanishing; burning distress in the region of the stomach; collapse. Give as above.

Cuprum.—Coldness and blueness of the skin; cramps of the muscles of the legs and thighs; unconsciousness; gurgling in throat, stomach and bowels; cessation of diarrhoea. Give as above.

Also when the patient is extremely ill, and fails to respond to the above remedies give *Carbo Veg.* if the body is cold; skin bluish; breath cool; cold sweat on limbs; thready pulse frequently losing a beat, *Hydrocyanic Acid* 3x, with practically no pulse; respiration slow, deep and gasping, taking place at long intervals. A dose every five or ten minutes.

The patient must be placed in a warm bed, and surrounded by hot water bottles, or hot bricks, flat irons or even stove lids wrapped in flannel. Rub the body and especially the extremities with hot flannel, rubbing toward the heart; give hot milk by rectal injections, but nothing by mouth except ice, champagne or lemonade; have the room warm but well ventilated.

During convalescence the return to a solid diet must be very gradual; begin with milk, thin gruels, and strained broths; no solid food until the stools are no longer liquid, and begin to look natural.

Disinfect all the stools or vomited matter with carbolic acid solution one to twenty; boil all soiled clothing, if it is not first soaked in a disinfectant; keep the patient's dishes, etc., separate. The attendant should disinfect his hands frequently, and two or three times a day take drop doses of *Camphor*.

The prevention of cholera includes the use of boiled drinking water; avoidance of uncooked fruits or vegetables; absolute cleanliness of person, house, yards and streets; good drainage; clean and covered cesspools; regular habits; the avoidance of all stimulants, overwork, worry, or exposure in chilly, damp weather, or to night air or crowds.

Typhoid Fever.

ALTHOUGH typhoid fever occurs in all countries and in all climates, it is more common in the temperate zones, and in the summer and autumn, being frequently called "Autumnal fever." It is contracted by taking into the system the typhoid bacillus or germ; this has a great vitality, and lives for months in the ground, in water or in a cake of ice, and multiples rapidly in milk. More men are affected than women, and in the young the disease usually runs a shorter course.

In the beginning there is slight headache, chilliness, languor, thirst, loss of appetite, constipation, and often nosebleed, sometimes diarrhoea. A few days later fever develops, and pulse and temperature

increase a little every day; the skin is hot and dry; thirst and ill-feelings increase, and the abdomen becomes more or less disturbed and is sensitive to pressure. Successive crops of rose-colored spots, like flea-bites, appear on the abdomen, beginning about the eighth day; inflammation of patches in the bowels leads to ulceration, and may cause death of the tissues, perforation of the intestines, peritonitis, hemorrhage and death, or death may result from pneumonia. In bad cases there is loud muttering delirium, with picking at the bed clothes; the teeth and gums are covered with a brown, sticky deposit called *sordes*.

Bryonia.—Early in the disease debility, languor, loss of appetite; tongue coated white; wandering pains in the limbs; dry, burning heat; also later in the disease when there is great thirst; dryness of the mouth; distended abdomen sensitive to pressure; dark colored urine; shooting pains in the chest, with cough; hurried, labored respiration; apathy; drowsiness; picking of the bed clothes.

Baptisia.—Dry mouth; coated tongue which shows impress of teeth; loss of appetite; nausea; flatulence in and tenderness of abdomen; dusky red face, and delirium following above symptoms; yellow, offensive stools; cordes on lips and tongue.

Rhus Tox.—May follow *Bryonia* or *Baptisia*. Mind dull and clouded; muttering or active delirium; tongue brown and dry, with a red tip; lips, teeth and gums covered by a brownish deposit; much prostration; pulse weak and slow; muscular soreness and stiffness of the extremities; abdomen bloated; copious, yellow, involuntary evacuations. This remedy is most often indicated as the symptoms given show in the second and third weeks.

Terebinth, 1 x.—Bleeding of the intestines, with tenderness of the abdomen; great distention and accumulation of gas; red, glossy tongue; mouth dry; great prostration and emaciation; offensive stools; bloody urine; may be bed sores. Drop doses every fifteen minutes.

Hyoscyamus.—Marked nervous symptoms; great nervousness; low, muttering delirium; sleeplessness; involuntary discharges from the bowels; picking at the bed clothes; gritting of the teeth; jerkings, trembling; rose spots on the chest and abdomen; cold extremities.

Also *Belladonna*, with great congestion of the head, red face, pupils of the eyes dilated, active delirium. *Hyoscyamus* may relieve this delirium if *Belladonna* does not. *Muriatic Acid.*—Extreme prostration; patient stupid and unconscious, sliding down in bed; low, muttering delirium; involuntary discharges from the bowels, and bladder; picking at the bed clothes. *Hamamelis, 1 x.*—Dark, pitch-

like blood from the bowels; bruised, sore feeling in the lower part of the abdomen. Ten drops every half hour. Unless otherwise specified give the indicated remedy every one to two hours; put twenty drops in half a glass of water; teaspoonful doses.

Good nursing is of the utmost importance in typhoid; the patient must be put to bed, and not allowed to get up on any pretense; keep some disinfectant in the bed pan, and disinfect the urine and stools with chloride of lime, six ounces to one gallon of water; protect the mattress with a rubber sheet; change the bed linen often, disinfect it and boil for half an hour; bathe the patient after each movement of the bowels with bichloride of mercury 1 to 2,000; cool sponge baths may be given every three hours, and should last twenty minutes, during which the skin should be exposed to the air; gas in the bowels may be relieved by passing a long rectal tube into the lower bowel.

While fresh, unskimmed milk is the best food (six ounces every two hours) with a teaspoonful of lime water if the stomach seems acid, peptonized milk, buttermilk, koumyss, matzoon, or white of an egg with water may be used as substitutes; strained mutton broth may be given, or meat juice if milk is not well borne; give plenty of pure water; rectal injections of nourishment if food is not retained by the stomach; during convalescence give broths; scraped beef; milk toast; blanc mange; wine jelly; soft egg; the soft part of oysters; steak to chew; baked potatoes, exercising with great discretion; no solid food of any kind if temperature goes over 100°. Brandy or sherry may be given for weak, irregular pulse, and delirium with much prostration; strychnine for heart failure, 1-50 to 1-100 of a grain. Persistent constipation may be relieved by soap and water injections.

Typhus Fever.—Putrid Fever.—*Ship Fever.*

TYPHUS fever is a highly contagious disease, due to a specific poison and developing especially where hygienic conditions are bad, as in overcrowded camps, prisons, hospitals, tenement houses or localities. It resembles typhoid fever but differs from it in many symptoms, typhus having a sudden onset; delirium from the first; high temperature on the second or third day (104° to 107°), which continues high; small, slightly elevated eruption called "mulberry rash," which persists; slight emaciation, and a duration of about two weeks, typhoid lasting from three to six weeks. The symptoms generally appear in the order given; severe chill or chills; vertigo; bad headache; muscular pains; loss of appetite; pain in the back; profound prostration; fever, with rapidly rising temperature as given above, which continues without remission during the first week. The measly-like eruption giving the skin a mottled look, appears by the fourth or fifth day; the pulse becomes rapid and feeble, and in the second week may reach 140 beats a minute; respiration is rapid; delirium

occurs, or stupor, the patient conscious but appearing unconscious; the teeth and tongue are covered with the same deposit as in typhoid fever, and there is muttering, and picking at the bed clothes. Death may occur from exhaustion, and from complications. Convalescence is generally slow.

Baptisia.—Face flushed, dark red; mouth and tongue dry; putrid breath; sensitiveness on right side of abdomen; constipation; sweat on forehead and face; great prostration, livid eruption, stupor; this is the chief remedy, especially during the first week.

Belladonna.—During the second week if headache is intense, and there is much nervous excitement with delirium, throbbing of the arteries in the neck, and jerking and sudden starting up, give *Belladonna* or *Stramonium* if the delirium is so violent as to threaten to exhaust the patient's strength.

Phosphoric Acid.—During the second week when patient lies in a stupor or stupid sleep; when aroused is fully conscious, but shows stupor, indifference, a "don't care condition"; no excessive prostration; maybe copious, frequent diarrhœa, preceded by rumbling in the bowels.

Arsenicum.—Great prostration; thirst; burning sensations; sordes on teeth and tongue; watery, yellowish diarrhœa, or stools containing blood, slime or pus; high fever; sometimes inability to pass urine.

Under "Typhoid Fever" read the indications for *Rhus Tox*, *Muriatic Acid* and *Hyoscyamus*. A dose of the indicated remedy every one or two hours. *Opium* may be thought of when the patient lies in a state of torpor from which he cannot be aroused, with heavy labored breathing; face flushed a dark red; full, slow pulse.

Follow the general treatment outlined under "Typhoid Fever." Fresh air is very essential; keep the windows wide open, and protect the patient with blankets. Every noise should be hushed. Use baths to reduce the temperature; give nourishment regularly and persistently in small quantities, and treat heart failure as under "Typhoid Fever." The patient must be strictly quarantined, and disinfectants used freely.

Yellow Fever.

THIS disease is well described on page 524. Its chief characteristic symptoms are chill, fever of from 103° to 105°; headache; severe backache; flushed face; eyes suffused; vomiting; albumen in the urine; then after two or three days a temporary subsidence of the symptoms for twenty-four hours, followed by signs of collapse; skin cold and yellow; weak pulse; "black vomit"; black stools: bleeding from nose, or stomach or bowels; dry, brown tongue.

Camphor.—Drop doses of the tincture every ten minutes when the onset is marked by severe chills, and signs of collapse.

Aconite.—After reaction from chill; fever; burning heat; dry skin; full, hard, and rapid pulse; violent thirst; red face; headache; restlessness; prostration, and vomiting.

Belladonna.—Headache; face bright red, shining and swollen; throbbing of arteries in the neck; pain in the stomach, with nausea and vomiting; violent delirium.

Bryonia.—When disturbances of the nervous system subside, and the stomach symptoms become prominent; splitting headache; eyes red and sparkling; tongue coated yellow; lips parched, dry, and cracked; great irritability and vomiting.

Also *Arsenicum*.—Small, tremulous pulse; skin cold; cold, clammy perspiration; rapid prostration, and vomiting of brownish matter mixed with mucus. *Veratrum Alb.*—Acute pains in the stomach and abdomen; violent vomiting; skin cold; cold perspiration; small, weak pulse; collapse. A dose every fifteen minutes to half an hour in serious conditions calling for either *Arsenicum* or *Veratrum*. A dose of *Aconite*, *Belladonna*, or *Bryonia* may be given every one or two hours.

The patient must remain in bed, and use a bed pan containing disinfectant, see “Typhoid Fever.” Liquid diet; rectal injections of nourishment if the stomach will not retain food; iced champagne or stimulants if there is danger of heart failure. Evacuations, clothing, etc., must be disinfected. Early treatment and good nursing are of the greatest importance.

Yellow fever germs are conveyed by mosquitoes, and persons in hot latitudes should always be protected from their bites by netting; should lead temperate lives; eat moderate quantities of wholesome food; bathe regularly, and avoid the use of stimulants.

Acute Inflammation of the Peritoneum.

Acute Peritonitis.

INFLAMMATION of the lining membrane of the abdomen may be limited or general, and may be due to exposure to cold, to the extension of inflammation of some organ in the abdominal cavity, to wounds, tuberculosis or consumption of the intestines, and often occurs after childbirth. Consult the section on page 345 for a detailed description of the disease. The chief characteristic symptoms are sudden onset with chill; sharp, cutting pains; fever, the temperature rising to 102° to 104°; great tenderness over the bowels, with distention from gas; hiccough; nausea and vomiting, constipation; face pinched and anxious; rapid, wiry pulse. The great tenderness and sensitiveness to the slightest touch, and increase of

severe unbearable pain by coughing or taking a deep breath, the high fever, and the position the patient assumes lying on his back with his knees drawn up show that the pain is not simple colic but either local or general inflammation of the peritoneum, and, it may be, of the bowels also. The course of acute peritonitis is very rapid, and the mortality is great. Death may ensue in from forty-eight hours to a week or two, or the disease assume a chronic form.

Aconite.—Inflammation from cold or exposure, and should be given early; hot, dry skin; great restlessness; high fever; hard, full, frequent pulse; short, quick breathing; abdomen hot, hard, swollen, and sensitive; great thirst. When peritonitis follows childbirth, and *Aconite* is called for, there are the symptoms given, also suppression of the flow of milk, and of the discharges of the womb and vagina; sharp, cutting pains, worse from pressure or lying on right side.

Belladonna.—Face flushed; throbbing of the arteries in the neck; great anxiety; the eyes shining and protruding; painful distention of the abdomen, with much heat and burning; sudden shooting, darting, colicky pains, worse from slightest contact or motion. After confinement when the discharges are hot and offensive, or suppressed, and there are violent after-pains.

Bryonia.—Follows either of the above remedies well, but *Aconite* best; splitting headache; shooting, cutting pains in the bowels, worse from slightest motion; great thirst for quantities of water; lips and mouth very dry; constipation; limpid exudation in the abdominal cavity.

Mercurius Cor.—Follows *Belladonna* particularly well when the acute inflammation results in the formation of purulent fluid or exudation; creeping chills; skin cold and covered with perspiration; foul breath; flabby, coated tongue; disturbed and painfully sensitive abdomen; mucous stool with urging, and violent burning and cutting pains, weakness and emaciation; swelling of the feet.

Veratrum Album.—Nausea and vomiting, with cold sweat; much diarrhœa; slow breathing; small and weak pulse; great restlessness, anxiety and exhaustion, in fact collapse.

Arsenicum.—Sudden sinking of the strength; restlessness; thirst for small quantities of water at a time; vomiting; violent burning and cutting pains in the abdomen; vomiting, and sometimes diarrhœa; the whole system is involved from absorption of the poisonous products of the inflammation; all symptoms worse after midnight.

Also *Rhus Tox* when peritonitis occurs in the course of the fever. *Cantharis* in extreme cases with scanty urine passed with great difficulty and a few drops at a time; great prostration.

Sulphur.—During convalescence to hasten the absorptions, and supplement the action of other remedies. A dose of the indicated remedy every half hour to one or two hours, according to the severity of the symptoms.

Good nursing is essential in these cases, and the removal of all sources of disturbances to the patient. Liquid nourishment in small quantities may be given every two hours, milk being best, hot or cold, plain, malted, peptonized or with Vichy water; soups or broths are sometimes more acceptable; beef juice and beef peptonoids are permissible; a return to solid food during convalescence should be cautious and gradual. Flannel compresses wrung out in nearly boiling water, and with a few drops of turpentine sprinkled on them before applying to the abdomen are recommended; cover them with oiled silk or dry flannel; renew frequently; cold compresses may be substituted for hot applications if preferred, but must not be allowed to become warm, or, saturate a linen cloth with one drachm of turpentine to one ounce of melted lard or olive oil. The bedding should be light, and pressure may be prevented by the introduction under them of a "cradle"; something similar may be improvised by using barrel hoops cut in halves. Bits of ice may be swallowed to relieve thirst, but should not be allowed to dissolve in the mouth when there is vomiting. Hot rectal injections are frequently beneficial.

Chronic Peritonitis.

THE chronic may follow the acute form, with thickening of the membranes, the formation of fibrous adhesions, and often the persistence of the effusions, so much exudation being present in some cases as to cause dropsy; obstinate constipation may alternate with diarrhœa; pain and tenderness vary in degree; the general health may not be much impaired or there may be much disturbance of the stomach and bowels, with great emaciation. Consult the remedies mentioned under the acute form.

Apis.—Soreness of the bowels and abdominal walls; pain in the abdomen on pressure, touch and on standing; pain extending upwards; swelling of the abdomen and legs.

Calcareæ Carb.—Abdomen hard and distended, with drawing pains or cramp-like pains, and feeling of painful pressure in the lower bowels.

Sulphur.—Distention of the abdomen and great sensitiveness to touch, with fullness as if from much wind; bruised pain in the muscles, and griping pains about the navel; much gas passes from the rectum, and smells like rotten eggs; worse at night.

Also *Silicea* in chronic, obstinate cases with alternate constipation and diarrhœa; stools very offensive; abdomen distended and hard; cutting and pinching pains; much gas with rumbling in the abdomen.

Arsenicum Iod. Much prostration and emaciation; sweats and tendency to diarrhœa, and many of the symptoms given under *Arsenicum*, in the previous section. A dose of the indicated remedy three times a day.

The general treatment must be conducted along the same lines as in acute cases; absolute rest; light, nourishing diet; fresh air; gentle exercise if able, such as short drives or rides in a boat or wheel chair but not to the point of fatigue; frequent tapplings of the abdomen if large quantities of fluid collect.

Inflammation of the Bowels.

SUCH cases may be recognized by heat, tenderness and distention of the abdomen; small, wiry and rapid pulse; obstinate constipation; excessive thirst, often severe pain and vomiting; drawing up of the knees as the patient lies on his back, and many other symptoms resembling those of peritonitis. In fact it is often very difficult for the non-professional to distinguish between the two conditions. It is of the less importance because the treatment general and special is practically the same, and the reader should consult the remedies given under acute and chronic inflammation of the peritoneum, as inflammation of the bowels also may be acute or chronic. *Aconite*, *Belladonna*, *Bryonia* and *Mercurius Cor.* are the remedies specially to be thought of, and *Cantharis* when the bladder is involved.

Prevention is an important part of the practice of medicine, so let the reader remember some of the common causes of inflammation of the bowels that they may be avoided so far as possible; exposure to cold and damp; eating unsuitable or tainted food; neglect of a hernia or rupture resulting in strangulation of the intestine; the excessive use of purgatives; neglect to have diseases of other organs properly treated. Other causes, such as wounds and typhoid fever, it may not be possible to avoid. In acute cases the diet should be light, and local application may be made as described under "Acute Inflammation of the Peritoneum."

Painter's Colic.

IN lead or painter's colic, where lead has been absorbed into the system, there are violent, painful contractions of the abdominal muscles, a retraction or hollowing of the abdomen, and obstinate constipation; sometimes a blue line may be traced about the gums. A very good extended description of this condition is given on page 355.

Opium.—Violent griping and cutting in the abdomen; pressive pain in the abdomen, as if the intestines would be cut to pieces; constipation; abdomen hollowed in; pulse full and slow; retention of urine.

Platina.—Pressing, bearing down pain in the abdomen, extending into the groin; pain so severe it causes screaming and constant change of position while seeking relief.

Also *Alumina*, with spasmodic pains in the stomach and chest, with difficult breathing, or pain pressing down into the groins. A dose of the indicated remedy three times a day.

Workers in lead should wash their hands often, and always before eating, take frequent warm baths, and drink plenty of milk and large quantities of soft water; drink no liquors; lemonade is an excellent beverage. Change of occupation should be made whenever possible when affected by lead. Copious injections of warm water are beneficial.

Fever and Ague.—*Intermittent Fever.*

THERE are severe forms of malarial fever described in detail on page 522, all characterized by three stages, the cold, the hot, and the sweating.

In the cold stage the patient has a severe chill, the face becomes pale, pinched and anxious; the teeth chatter, the body shakes, the rapidity of the perspiration and pulse is increased; while the urine diminishes and is passed frequently. When fever appears, the skin is burning hot; the face flushed; thirst is extreme; headache severe; pulse full, rapid and bounding; temperature high; urine scanty and high colored. In the last stage the patient generally perspires freely, the temperature falls and the attack is over for that time, after lasting several hours. If the disease persists, enlargement of the liver and spleen may result. Marshy districts are most prolific of chills and fever, but the wind may carry the disease inland. General debility, intemperance and exposure at night to the germ-laden air, favor its development. Defective drainage and sewerage may prove fruitful causes. The malarial parasite may be conveyed by the *anopheles*, a species of the mosquito, after the mosquito has become infected by feeding on the blood of a person having malaria.

Chininum Sulph.—Recent cases in marshy districts. Paroxysm preceded by headache, hunger and palpitation. Each stage well marked; first, severe chill, with violent shivering and aching pains, then fever, no thirst; yellow, sallow face. Attack occurs every second day.

Arsenicum.—After excessive use of *Quinine*, or in chronic cases with one stage absent, usually the chill, or with the chill and fever intermingled; urgent thirst throughout; pulse small and feeble; prostration, nausea, pains in the stomach and bowels; dropsical swellings.

Ipecac.—Backache; short chill; long fever; *nausea and vomiting predominate*; tongue coated yellow; difficult breathing.

Natrum Mur.—Chill, 10 to 11 A. M., beginning in the feet or small of the back; thirst; *bursting headache*; nausea and vomiting; nails blue. In the second stage heat, with violent headache and thirst followed by profuse perspiration which gives relief.

Eupatorium Perf.—Thirst several hours before the chill, continuing during the chill and heat; *short* chill, the hot stage *protracted*, and sweat *slight*; back aches as if it would break during the chill and hot stage; lips and nails blue.

Also *Veratrum Alb.* when coldness of the skin; cold, clammy perspiration are marked, also great thirst especially during chill and sweating; profound prostration; vomiting and diarrhœa, with griping, and pains in the back and loins.

Capsicum.—When chill begins in the back, with thirst; worse after drinking; chill is followed by sweat, or by *heat, with sweat* and thirst. A dose of the indicated remedy every one to three hours.

The general health must be improved by nourishing food, cod liver oil, malt extracts, iron, etc.; cold sponge baths taken; light weight woolen underwear worn; night air and irregular living avoided; sleep in an upper room if in a malarial district.

Bilious Remittent Fever.

THIS is a somewhat severer form of malarial disease than the intermittent, but is milder in the northern than in the southern states, where it more frequently occurs. The fever does not intermit, but continues right along although there are marked remissions of its intensity. Remittent may follow intermittent fever. Mild cases may last a week or two, but severe and badly treated ones, several weeks. Its symptoms and course are given on page 520.

Gelsemium.—Great languor and muscular weakness; head congested; face flushed; chilliness; full, quick, soft pulse; dull pain in the head, back and limbs.

Pulsatilla.—Whitish coating on the tongue; bitter risings and vomiting; chilliness; no thirst; especially serviceable in cases that drag along, and seem to make no progress towards recovery.

Ipecac.—Indigestion; headache; yellow or white coated tongue; bitter taste, vomiting and constant nausea.

Also *Belladonna* if the attack begins with a severe chill, with vomiting and retching; violent fever, worse at night. Consult the remedies under "Fever and Ague," also the general treatment.

Rheumatic Fever.—*Inflammatory Rheumatism.*

EXPOSURE to cold and dampness, or wet weather may cause rheumatic fever in those of lowered vitality. There is languor; chill or chilly

sensations; fever; rapid pulse; soreness and stiffness of the joints, most frequently of the knee, ankle or wrist; profuse acid sweats; scanty urine. The temperature may rise as high as 103° or 104° . The attack may last from a few days to several weeks, and the acute form may become chronic. One attack predisposes to another. The heart may be more or less seriously affected.

Aconite.—The leading remedy full, strong pulse; great thirst, anxiety and restlessness; the affected parts red, swollen and exceedingly sensitive; later, high fever; shooting, tearing pains.

Bryonia.—When the disease is established; intense, local inflammation; joints pale or dark red, and exceedingly painful, worse by contact or the slightest motion; face flushed and hot; loss of appetite; tongue a dirty white; sticking pains in chronic cases.

Rhus Tox.—A valuable remedy, especially when the patient is impelled to move the parts, regardless of pain; fever; great restlessness; parts red and swollen, but better on continued motion; pains, drawing, tearing, burning; little swelling in chronic cases.

Pulsatilla.—Shifting, violent, drawing and jerking pains; chilliness; not much fever, redness or swelling; rheumatism in women with menstrual disorders.

Colchine 2 x.—Acute attacks, with much swelling and severe pain; fever; irritability; sensitiveness to touch; shifting pains. Six tablets in half a glass of water, one teaspoonful every three hours, omitting or lessening the strength of the medicine if disturbances of the stomach or bowels arise.

Chronic Inflammatory Rheumatism.

PAIN is the most prominent symptom, generally worse on motion, which may relieve stiffness. There is tenderness of the joints, with crackling, some swelling and redness. This form of rheumatism is most common between the ages of forty and sixty.

Bryonia, *Rhus Tox.* and *Pulsatilla* are often called for. They are described under "Rheumatic Fever."

Calcarea Carb.—Swelling of the joints worse with every change of the weather; after working in water, or when *rhus* has only partially relieved.

Dulcamara.—Chronic cases from living in damp rooms; working in cold, damp places, ice houses, etc.

Ledum.—Obstinate rheumatism, especially of the lower extremities, and smaller joints; stitching, tearing, rapidly shifting pains, and bruised soreness in the muscles.

Also *Mercurius sol.* especially in syphilitics, with tearing pains; profuse perspiration, which gives no relief, worse at night and in cold, damp air. *Kalmia*.—Wandering pains, especially in rheumatism of the chest and the upper part of the body, or affecting the heart; little or no fever or swelling. *Sulphur*.—Pains worse at night; feet burn; drawing, tearing pains in the limbs or back; nape of the neck lame and stiff. A dose of the indicated remedy three times a day.

Water must be taken freely, lithia and medicinal alkaline waters being indicated; milk is an excellent food; meat and stimulants are to be avoided. Massage of the affected joints is useful, also dry heat and galvanism. Turkish baths are frequently beneficial. Moderate movements of the affected joints should be persisted in. Sweets and starchy foods should be used sparingly.

Lumbago is rheumatism of the back for which *Bryonia*, *Rhus Tox.*, *Sulphur* and *Cimicifuga*, already described, are most frequently indicated. *Sciatica* or neuralgia of the sciatic nerve is treated of in another section.

Gout is a near relation of rheumatism in many of its symptoms, and is a general disorder of nutrition characterized by an excess of uric acid in the blood. It is well described in the section on the allopathic treatment of this disease.

Colchicine, one-grain doses every one-half to two hours is a most helpful remedy while the pain is severe, and may be given twice a day between the attacks. This remedy is very valuable when the joints are becoming deformed, especially these of the fingers, with slight, sticking pains, and sometimes redness. *Lithium Benzoicum* 1 x.—Gout with high-colored, strong smelling urine. *Nux Vom.* between the attacks is valuable in correcting constitutional conditions due to the use of stimulating foods or beverages, "high living," also *Pulsatilla* after rich foods, sweets, pastry, etc.

Dropsy.

DROPSY of the abdomen is so common and dependent upon so many diseases that a separate section is given to it. There are many other local accumulations, as dropsy of the brain or hydrocephalus, in which *Apis* or *Helleborus* may prove serviceable; the latter remedy when there is effusion of fluid, with the patient in a state of stupefaction or insensibility, from which it is extremely difficult to arouse him; there is rolling of the head from side to side; boring of the head into the pillow; sudden screams; grinding of the teeth; sometimes suppressed urine.

In dropsy of the chest or of the heart, *Jaborandi*, *Digitalis*, *Arsenicum* or *Helleborus* when there is the characteristic stupefaction and mental torpor, and when dropsy there or elsewhere in the body follows scarlatina or other eruptive diseases. *Apis* when there is great suffocation, the patient not being able to lie down, and feeling as if he

were going to die; exudations in pleurisy. There is also ovarian dropsy, dropsy of the scrotum called hydrocele, and general dropsy or anasarca, well described on page 391, and in which any one of the remedies above mentioned may be indicated, especially *Arsenicum* and *Apis*.

These conditions are dependent on diseases of the general system or of certain organs, and require the skilled care of a physician. Most of the remedies named in this section are described fully under "Dropsy of the Abdomen." The treatment for ovarian dropsy and hydrocele is surgical.

Dropsy of the Abdomen.—*Ascites*.

ASCITES is an accumulation of serous fluid in the abdominal cavity. There is generally some history of disease of the liver, lungs, heart or kidneys. Enlargement of the abdomen begins from below and extends symmetrically upward, and pressure on the abdomen reveals a peculiar wave-like impulse of the fluid from one side to the other. Often swelling of the lower extremities follows, a diminution of the amount of urine and constipation. When there is heart or lung disease, the dropsical condition is general, and usually there is also water in the chest.

Apocynum.—Especially when dropsy is dependent upon diseases of the liver or kidneys, and there is scanty urine; great thirst; irritability of the stomach. Five drops of the fluid extract three times a day; if it causes nausea it can be diluted and injected into the rectum.

Digitalis.—Great anxiety and oppression; suffocative spells; sudden sensation as if the heart stood still; pulse feeble, fluttering, irregular, intermittent, or extremely slow; any motion, especially rising from a bed or chair, causes the pulse to become rapid, weak, and jerky; sometimes the face grows livid and there is faintness. This remedy is specially useful in dropsy dependent on heart disease, and may be given the same as *Apocynum*.

Arsenicum.—Ascites as part of a general dropsy, secondary to disease of the heart or liver, sometimes of the kidneys; pale, earthy, or sallow countenance; great debility, with faintness on the slightest motion; great thirst but drinks but little; sensation of burning heat all through the body, while the skin is cool; urine scanty and high-colored; emaciation; great prostration.

China, 2 x.—Dropsy in great debility, with impoverished blood, or after exhausting discharges; dropsy due to enlargement of the liver or spleen, especially from malarial poisoning; great debility; poor blood; diarrhoea and fermentation after eating; hunger; thirst; scanty urine containing a whitish or yellowish-red deposit.

Apis.—An important remedy, especially in general dropsy; skin whitish, waxy, transparent; eyelids puffy and swollen; scanty urination; no thirst; also in the dropsy accompanying heart disease, Bright's disease, pleurisy, etc.

Jaborandi.—Especially useful when dropsy is due to disease of the heart or kidneys; it produces copious perspiration, rapidly withdraws the water from the blood, and causes active reabsorption of the effusion. Five grain doses of the powdered leaves or tincture three times a day.

Medical treatment is always helpful, and may obviate the necessity for "tapping," as it is called, or the drawing off of the accumulated fluid. The latter must sometimes be done, however, to relieve pressure which interferes with breathing, and with the heart's action. Water should be drunk freely; a light, nourishing diet chosen, and vapor baths taken.

Also *Caulophyllum* when the small joints of the hands or feet are attacked. *Cimicifuga* when the pains are wandering, in the muscles of the limbs and trunk; rheumatism in nervous women. *Mercurius Sol.* High fever; quick, hard pulse; obstinate inflammation of a single joint; ruffy swelling, pale or light red; burning, deep-seated pains; foul breath; coated tongue; no appetite; great sensitiveness to cold. A dose of the indicated remedy every two hours, increasing the intervals as the symptoms are relieved.

During acute attacks of rheumatism the patient should remain in bed between blankets, wear a flannel nightdress, and be protected by a screen from all draughts. The room should be well ventilated. To acutely swollen and highly inflamed joints, antiphlogistine may be applied after cleansing the parts thoroughly with warm water and soap. In general, all joints may be protected by absorbent cotton or raw cotton and flannel bandages. An excellent lotion to apply by flannel compresses is carbonate of potash, one ounce, tincture of opium six ounces, warm water one pint. Change at once all coverings dampened by perspiration. Frequent warm sponge baths are a necessity. Liquid diet is indicated while there is fever, milk especially should be given; a light farinaceous diet during convalescence, no meats; an abundance of water should be taken but no stimulants.

Night Sweats.

NIGHT sweats are a marked symptom of pulmonary tuberculosis, and occur frequently during the course of acute diseases, in fact may be associated with a large number of diseases both acute and chronic. They are a symptom, and the cause must be found and removed. The reader is referred to the section on "Pulmonary Tuberculosis" for the indications for many remedies called for in night sweats in persons of a consumptive tendency.

For others a few remedies may be briefly mentioned, emphasis being laid on the fact that the general condition, habits and temperament of the individual must invariably be taken into consideration.

Hepar Sulph.—Great sensitiveness to the slightest cold air, with a tendency to easy, profuse, sour smelling, offensive sweat on the slightest motion.

China.—Sweat on back and neck from least motion in much debilitated conditions following diarrhoea, leucorrhœa, loss of blood, and in nursing mothers.

Arsenicum.—Cold, clammy, or sour and offensive sweating in persons in malarial districts; copious perspiration when first going to sleep, with unquenchable thirst.

Ferrum.—Great weakness and nervous prostration; chilly every evening; profuse, long-lasting, clammy, debilitating sweating; sweat stains clothes yellow.

Phosphorus.—Profuse perspiration at night, during sleep, in the morning in bed, and on slight exertion; especially in connection with masturbation and sexual excesses, or give *Phosphoric Acid* in the same conditions and in brain fag, and in young people growing too fast, very nervous and emotional.

A dose of the indicated remedy twice a day. Remove the cause of this complaint, and correct all errors in diet, manner of life, etc.

Specific Indications for Remedies in Fevers.

Aconite.—Exposure to dry cold winds, draughts of air, effects of checked perspiration, getting wet when heated; fever after fright; chill from feet to chest; chilly when uncovered or even touched; coldness with redness of one, and coldness and paleness of the other cheek; dry heat in the face towards evening, with high fever, great fear, and nervous excitability, restlessness and tossing about; great thirst for large quantities of water; skin dry and hot; pulse full, hard, bounding; stinging, burning pains.

Antimonium Tartaricum.—Fevers following rheumatic exposure, living or working in cellars or basements, underground habitation or employment; chill and heat without thirst, alternating during the day; cold skin; trembling and chilliness always from within outward; short chill and long heat, or the reverse, with drowsiness and profuse sweat on the forehead; cold, clammy, profuse sweat of affected parts; fevers in spring and autumn, with nausea, vomiting and drowsiness, especially in children. *Antimonium Crudum.* Fever with predominance of stomach symptoms; constant discharge of wind up and down; heat with sweat; sweat at same hour every other day; chill without thirst; milky white, thickly coated tongue; desire for pickles, disgust for drink or food.

Arnica.—Malarial fever in cases when too much quinine has been taken; bruised, sore, weary feeling; great weakness making patient lie down, yet bed feels too hard, cannot find soft place; sour, offensive sweat; belching of gas tasting like rotten eggs; chill, with thirst, felt most in the pit of the stomach; heat of the upper part of the body, coldness of the lower; bitter taste in the mouth; tongue never clean; fever, especially in full-blooded persons, who feel the effects of even slight blows or injuries a long time.

Arsenicum.—A valuable remedy in typhoid, continued and intermittent fevers, malarial fever returning every year; chill, without thirst, better from external warmth; coldness of the whole body, pale, sunken face; chill mostly in the afternoon; hot stage intense and long lasting; great restlessness and debility; cold, clammy sweat; internal, burning heat; typhoid fever of a low type, with diarrhœa, distended abdomen, great prostration, weak pulse, burning pains in the stomach, dry, red or brown tongue, disposition to vomit, brown sticky deposit on teeth.

Belladonna.—Violent throbbing headache; rush of blood to the head; throbbing of arteries in neck and temples; skin bright, shining red; tongue red and dry; great thirst; burning heat within and without; boring of the head into the pillow; fever with delirium; sudden starting in sleep; pain in paroxysms, worse from any jar, from touch and towards midnight; excitability; convulsions.

Bryonia.—Complaints occurring when warm weather sets in after cold days; from cold drinks or ices in hot weather; after taking cold or getting heated in summer; fever, with suppressed eruptions; diarrhœa during hot days in summer; great thirst for large quantities of cold water; profuse, sour, oily sweat, easily excited by exercise, even slow walking; heat with increased thirst, dry, racking cough and pleuritic stitches in side; patient wants to be quiet and not move about; everything tastes bitter; pulse full and hard; violent headache as if the head would burst; constipation; dizziness.

Calcareo Carbonica.—Fair complexioned persons or those of a scrofulous makeup, disposed to grow fat; children who take cold easily, have large heads and abdomens; head sweats profusely during sleeping; acid stomach; chill, with thirst; heat without thirst; coldness of face, hands or feet; cheeks red; especially in fever from working while standing in cold water, or from handling wet clay or cold vegetables, or women with menstruation too early and too profuse, with cold, damp feet.

Capsicum.—Intermittent fever in midsummer, with chill beginning between the shoulder blades, better from hot applications externally, and by motion; thirst before and with the chill, but no pains in the bones; fever without thirst, and patient cannot bear any noise;

sweat without thirst; burning blisters on tongue; sometimes diarrhœa; burning and smarting sensations.

Carbo Vegetabilis.—Fevers especially in persons who have suffered from exhausting diseases, and have never fully recovered; fever after eating spoiled meats or fish, from getting overheated; weak digestion, the simplest food disagrees; much gas in the stomach and bowels; feeling as if the stomach would burst after eating; thirst during chill only, followed by heat with headache, flushed face, vertigo and nausea; profuse, sour sweat, especially while eating; tearing pains in the limbs and teeth.

Chamomilla.—Fevers of children with peevishness and irritability; feverish attacks in the spring in nervous persons, or from anger, vexation, etc.; young, fretful children during teething; chill without thirst; chilliness on undressing; heat and shivering intermingled; hot perspiration, especially of the face and head; one cheek red, the other pale; instead of fever a paroxysm of violent bilious colic with vomiting and diarrhœa, from anger and vexation.

China.—Ailments with fever from loss of blood, excessive lactation, diarrhœa, of malarial origin with fever every other day; nausea; ravenous appetite; palpitation of the heart; much thirst before the chill, ceasing as soon as the chill begins; violent shaking chill; heat without thirst, followed by sweating, with great thirst; bitter taste in the mouth; great debility and exhausting night sweats; skin yellow; bitter eructations and bitter vomiting; marsh fever and malarial fever returning every seven or fourteen days.

Cina.—Continued fevers in irritable children, who do not want to be touched or caressed, suffer from worms, rub or pick the nose all the time, hungry soon after a full meal and crave sweets; nervous, weakly, scrofulous children; pale face, with blue margins round the eyes; chill without thirst; shivering and creeping chills, with cold face and sweat on forehead and hands; heat with pale, puffy face; sweat without thirst, and vomiting after sweating.

Ferrum.—Especially adapted to debilitated women who yet have a red face; to excitable, argumentative persons, with extreme paleness of the face becoming red on the least pain, motion or exertion; painful blushing; general constitutional weakness; pale, watery, debilitating monthly flow; raising of partly digested food; vomiting after midnight; constipation; chill with thirst, and headache, head gets glowing hot, feet cold; heat without thirst; profuse, long-lasting sweat; prostration; lips, tongue, and inside of mouth bloodless.

Gelsemium.—Recent cases of malarial fever, fever attacks returning regularly without chill, with burning heat, great restlessness, then

profuse sweat with thirst, pain and jerking in the limbs; fever with drowsiness, trembling and languor, pains in the neck and back; headache beginning in upper part of spine; vertigo; fever in hysterical women and children.

Ignatia.—Especially adapted to the nervous temperament, sensitive, excitable women; feverishness from grief, bad news, disappointments, in children after being punished; malarial fever with thirst *only during the chill*; shaking chill with redness of the face, great thirst, and desire for external warmth; heat of the whole body in the afternoon without thirst, and sweat without thirst; also fever with nettle rash of the whole body, and violent itching; lips dry and cracked; eruption on the lips and in the corners of the mouth.

Ipecacuanha.—Persistent nausea is a prominent symptom; short chills worse in a warm room and from external heat, better from drinking and being in the open air; long attacks of fever, with nausea and vomiting, cold hands and feet, great oppression of the chest, can hardly breathe; light sweat or profuse sweat after excessive use of quinine; the feeling of greatest prostration occurs during the chill; fever from irritation of the stomach in deranged digestion, with persistent nausea.

Lachesis.—Better adapted to dark, thin people with a tendency to low spirits, than to fair, fleshy persons; feverishness and hot flushes at the change of life with bursting headache, rush of blood to the head, great sensitiveness to touch and to tight clothing, feels worse after sleep, great physical and mental exhaustion; malarial fever returning every spring or after taking quinine or acids; chill beginning in the small of the back and without thirst, chill and heat in alternation, sometimes nausea or nausea and vomiting; heat with violent headache; profuse sweat smelling like garlic, and staining linen yellow; trembling of tongue when protruded; palpitation of heart.

Mercurius.—Catarrhal and bilious fevers; yellow fever; malarial fevers; hectic and irritative fevers of children, with intestinal derangements; free perspiration in all fevers affording no relief, and sometimes aggravating symptoms; chilliness of whole body in afternoon or evening, and on going into the open air; heat with thirst; heat alternating with chilliness; profuse, sour, offensive sweat on every motion and at night, staining linen yellow and wrinkling fingers like a washerwoman's.

Natrum Muriaticum.—Especially adapted to those debilitated from seminal losses or profuse menstruation, losing flesh even while living well; spring, summer and autumn fevers; malarial fevers, worse from heat of sun or stove, from sea air, talking, writing, reading or lying down; languor, headache and thirst before chill; chill with thirst about 8 A.M. followed about noon by heat with increased

thirst and hammering headache; profuse sweat, with thirst, gradually relieving all pains except headache; fever blisters on lips; between attacks languor, debility, sallow complexion, loss of appetite and taste; muddy urine, with red, sandy sediment.

Nux Vomica.—Fever and ague in children; shaking chill, with blue mottled skin, especially on covered parts; great thirst during chill and fever; tendency to spasms as the chill passes off and sweat comes on; constipation, with ineffectual urging to stool, especially in nursing children; malarial fevers in thin, irritable, nervous or sanguine persons, who are dyspeptic, and always on the rush, eating irregularly, and improper food, drinking much tea, coffee or other stimulants; morning chill, preceded by drawing pains in the lower limbs; sometimes heat and thirst, chill with bluish, cold face and hands; long lasting heat, with great thirst, but cannot move or uncover without feeling chilly; sweat, without thirst, relieving pains, tongue heavily coated white or yellow; bitter or sour taste; soreness of liver and spleen; loss of appetite; obstinate constipation.

Opium.—Typhoid fever; child-bed fever; intermittent fever, with chill predominating, shaking chill at 11 A. M. with great coldness of nearly the whole body, followed by burning heat all over, unrelieved by profuse sweat; heavy, snoring sleep, with open mouth and twitching hands; desire to be uncovered; typhoid fever with bloated, dark red and hot face; stupor or excessive drowsiness, with labored breathing; picking at the bedclothes; mild delirium or fury, singing, desire to escape.

Pulsatilla.—More especially indicated in fevers associated with pronounced disturbance of the stomach; gastric catarrh and indigestion in general, with putrid, slimy, greasy or bitter taste after eating; loss of appetite; tongue coated thickly white or yellow; bitter or rancid eructations; fat food and ice cream or ice water upset stomach; fever beginning with constant chilliness even in a warm room, worse evenings; shivering, creeping sensations; heat with thirst; intolerable, dry, burning heat evening or night, with distended veins and burning hands; one-sided sweat worse at night, and ceasing in morning; fever in mild, tearful, fair women and children.

Rhus Toxicodendron.—This remedy is indicated in scarlet fever of a typhoid tendency; irregular and dark red eruption, sometimes with watery pimples, swelling and dropsy of the tissues, enlargement and threatened suppuration of the glands of the neck and jaw; great restlessness; in small pox with dark, blackish eruption; dark, bloody stools, diarrhoea and restlessness; typhoid fever with great restlessness, tongue and lips dry, brown and covered with sticky deposit, weak pulse, distended and tender abdomen; remittent fever, constant chilliness, especially evenings; pains in the limbs, much thirst,

coldness of hands and feet; heat with thirst and throbbing dull headache, profuse odorless, but not exhausting sweat; fevers in rheumatic persons.

Sulphur.—Chronic cases in scrofulous or nervous persons, when the indicated remedy does not give favorable results, or there are constant relapses; malarial fevers with chilliness every evening in bed followed by heat and burning of the palms of the hands and soles of the feet, and profuse perspiration, frequent internal chilliness, without thirst, chills up the back, frequent flushes of heat, profuse sweat at night or after waking in the morning.

Veratrum.—Congestive or pernicious malarial fever, with great prostration; fear of death; severe long-lasting congestive chill, not relieved by external warmth; face and extremities cold and clammy; cold perspiration over whole body, especially forehead; small, weak pulse; skin blueish, danger of death from collapse during the attacks.

Diseases of the Nervous System.

Headache.—*Cephalalgia*.

HEADACHE is a symptom, not a disease. Among the principal causes of headache are indigestion especially from rich or fried foods, or bolting one's food; constipation; excessive headwork or work where light or ventilation is poor; defective vision, with resulting eye strain; the use of stimulants including tea, coffee and patent medicines; sexual excesses; hysteria; excessive grief or anger; rheumatism; general debility; nasal catarrh; diseases of the liver, kidneys or generative organs; in women, suppressed monthly flow from getting wet or cold; syphilis; malaria; sleeping in a hot or badly ventilated room, and many acute diseases.

Try to discover, and when possible, remove the cause.

Belladonna.—Congestive or nervous headache; intense pain in forehead, temples and eyes, worse from slightest jar, motion, touch, noise or light; flushed face, hot head, throbbing in the temples.

Ignatia.—Nervous headache from grief, anxiety; generally one-sided as if a nail were driven into the head; periodical attacks in sensitive or hysterical women; face pale.

Gelsemium.—Dull, heavy pain, extending from the nape of the neck to the top of the head; dimness of sight or double vision; giddiness; pressure on top of head; eyes heavy; full pulse; feeling of exhaustion.

Bryonia.—Rheumatic headache in cold, damp weather with bursting, splitting pains in forehead somewhat relieved by pres-

sure, worse from stooping or motion; irritability; fits of anger; sometimes bilious vomiting.

Cimicifuga.—Headache from loss of sleep, mental strain, or worry; dull, pressive ache from back of head to forehead and eyeballs; racking pain in bones of skull; headache at monthly period with bruised pain in small of back.

Glonoine.—Congestive headache from heat, as a hot kitchen or exposure to sun; severe throbbing, pulsating pains, with fullness, pressure and dizziness.

Irir Versicolor.—Sick headache, with blur before the eyes, followed by nausea and bilious vomiting; dull, throbbing or shooting pains in forehead; headache recurs about once so often; "school teacher's headache."

Nux Vomica.—Sick headache from wine, coffee, patent medicine, sedentary habits, or mental application; the sufferer wakes up with it, or it begins early in the day and increases; nausea; sour, bitter vomiting; constipation; symptoms worse from noise and after eating.

Silicea.—Chronic, persistent ache beginning in upper part of spine or nape of neck and extending over head; scalp often very sensitive; pain worse from noise, jarring or mental or physical exertion; better from warmth; "bookkeeper's headache."

Also *Coffea* for headache with great nervousness, wakefulness, pains seem unbearable, mind very active; useless for coffee drinkers. *Pulsatilla*. Headache from suppression of monthly flow or copious leucorrhœa; from eating greasy food, rich pastry or ice cream. *Podophyllum*. Morning headache, with pain or soreness in liver; yellowish diarrhœa; giddiness, and heat and fullness in top of head. *Aconite*. Headache from simple cold in the head, and *Hypericum* for stitching pains or throbbing following a bad shaking up from a fall, blow on the head; eyes sore.

In congestive headaches the application to the forehead of small pieces of cotton cloth wrung out in cold or ice water (cold compresses), and of hot water bottles to the feet, often gives partial relief. A vegetable diet is often helpful to those subject to periodical sick headaches. Hot, dry flannels, a hot bag of salt or hops, or a hot water bottle lessen the pain in neuralgic and catarrhal headaches. A small cup of hot, strong coffee for *non*-coffee drinkers sometimes relieves faintness and nausea of headaches. Keep quiet and away from the light; eat simple food; keep the bowels open. Massage and electricity are helpful in headaches from exhaustion and nervousness; also beef and iron, and malt and cod liver oil when there is general debility. Take a dose of the indicated remedy every fifteen or twenty minutes during the attack; increase the intervals as pain lessens.

FAILURE or loss of memory may be the result of so many different causes that to enumerate them all would be impossible. Whatever impairs the nutrition of the brain, as an acute fever, severe mental shock, the trance state of hysteria, the use of alcohol, etc., impairs memory. Diseases of the brain itself, as meningitis, hemorrhage, softening of the brain substance or the formation of a tumor, affect memory. Weak memory may be a passing and temporary condition, as when it occurs during convalescence from an exhausting disease, or may be permanent as in degenerative conditions embracing some form of insanity. Sexual excesses and perversions impair the memory often very seriously.

It is not to be supposed that remedies can be recommended to cure any case regardless of its origin. It should be remembered that weak memory or loss of memory is a symptom, and not the diseased condition itself. A specialist in nervous or mental diseases must frequently be consulted. A few remedies will be suggested for weakness of the memory due to the simpler causes.

Nux Vom.—Weak memory in those using alcoholic beverages to excess, or who are closely confined to mental work, who have stomach and liver troubles; cannot think correctly; sleepy after meals, but sleepless at night or have dreamy sleep, and are wide awake at 2 or 3 A. M. for an hour or two.

Phosphoric Acid.—Weakness of memory; patient finds it difficult to comprehend things; incapacity for thought; disinclination to talk; vertigo; frequent, profuse, and debilitating emissions; weak memory after sexual excesses.

Anacardium.—Great weakness of memory, especially as regards single names, worse forenoons; vanishing of thought; headache with great irritability; brain fag.

China.—Weak memory after exhausting diarrhœa, or loss of blood; after sexual excesses or masturbation; slow flow of ideas; difficulty in arranging thoughts; reverses words; easily thrown out by others talking.

Opium.—Loss of memory or weak memory from fright; great confusion, dullness and heaviness of the head, making thought and writing difficult, or give *Aconite* when there is weak memory from fright, with great timidity, fear of death, fear of the dark, etc.; excessive restlessness; variable humor, gayety then dejection; vertigo with nausea.

Ignatia.—Weak memory following suppressed grief, disappointment in love, etc.; much brooding over troubles in sensitive, changeable persons.

A dose of the indicated remedy twice a day. Improve the general health by rest, fresh air, and attention to all the laws of hygienic living.

Vertigo.—*Swimming of the Head.*

VERTIGO may be due to derangements of the stomach or liver, diarrhœa, constipation, loss of vital fluids, hard study, defective vision, diseases of the brain, heart disease, nervousness, epilepsy, malaria, general debility, many contagious diseases, old age, the excessive use of tobacco or drugs. Continual vertigo after heavy meals or considerable exercise is frequently a danger signal of apoplexy. Vertigo is a symptom of some disease or derangement of the functions of the body.

Nux Vom.—Vertigo after using alcohol or carbonated drinks, much tea, coffee, or tobacco; vertigo from over-eating, constipation, excessive mental exertion accompanied by debility.

Phosphorus.—Vertigo when there is great nervousness; uncertainty in walking or standing, and the sufferer feels as if drunk, walks with legs far apart or takes short strides; dullness and confused feeling in head; much debility; vertigo worse after meals and sleep; vertigo from sexual excesses.

Digitalis.—Vertigo with heart trouble; tendency to faintness and breathlessness; some palpitation; slow, feeble pulse; anxiety and weak memory.

Conium.—Vertigo in feeble, old people, especially on rising in the morning and when walking; weakness of vision; staggering, uncertain gait; vertigo from masturbation.

Also *China* for vertigo following profuse bleeding or diarrhœa. *Aconite*. Vertigo from rush of blood to the head, worse after stooping; nausea; full pulse. *Cocculus* for vertigo from riding in the cars or a carriage; from seasickness. *Arsenicum*, when vertigo is due to malarial surroundings, bad air in work shops, from cesspools, lack of ventilation, etc. *Glonoine*, where head is affected by the sun or other intense heat.

When the system is debilitated, build it up by outdoor life and simple, nourishing food. Do not use alcoholic beverages. Find what causes the vertigo. Avoid excitement, over-work or over-exertion. In acute cases a dose of the indicated remedy every half hour or hour; in chronic cases, four times a day.

Sleeplessness.—*Insomnia.*

ANXIETY, over-fatigue, nervous prostration, excessive labor, mental or physical, fright, excitement, tea, coffee and other stimulants, including tobacco, may cause sleeplessness, also too little fresh air and exercise, eating a hearty meal in the evening, pregnancy and many diseases.

Coffea.—When the patient is quiet and sleepless; the senses all acute; distant noises are heard with great distinctness; the mind is active and busied with plans; next day brain fag, and dull headache. Also, for wakefulness and fretfulness in nervous children. A dose four times a day. Useless for coffee drinkers.

Nux Vom.—Sleepy in the evening; falls asleep in his chair and upon going to bed; wakes before daylight; drowzes, and rises with headache, and more tired than upon going to bed. Often associated with constipation or indigestion. A dose four times a day.

Belladonna.—Especially for children, who start up in fright just as going to sleep, or who wake and cry out suddenly during the night; restlessness; bad dreams. A dose four times a day.

Sulphur.—The patient sleeps in “cat naps”; the least noise awakens and there is great difficulty in getting to sleep again. A dose morning and night.

Hyoscyamus.—Drowsy but cannot sleep, or twitches and talks in sleep; dreams bad dreams, awakes with a start and frightened, thinks there is something or somebody in the room. A dose four times a day.

Remove the cause if possible. Sleeplessness from nervousness and exhaustion will be benefited by a drive or open car ride in warm weather in the evening, retiring immediately on returning to the house. A cold douche along the spine in the morning followed by friction and warm sponge bath at bedtime, with open windows in bedroom all night will be helpful. No late dinner but a glass of warm milk, malted milk or grape juice before retiring if faint. Massage is excellent. Avoid excitement or mental exertion in the evening, late hours, soft beds and too many bedclothes; sleep alone.

Rush of Blood to the Head.—*Hyperemia of the Brain.*

RUSH of blood to the head is not uncommon in full-blooded persons, but exactly similar sensations may be experienced by persons in a debilitated, ill-nourished condition. Hyperemia of the brain is a symptom, and may be associated with many diseases, but in general we may say the normal circulation or nutrition of the brain is interfered with. The attacks may be acute or chronic, and may precede, accompany, or follow other illness. The symptoms may be learned from the indications given for the use of the following remedies:

Aconite is the remedy for acute congestion resulting from cold or violent emotion, with hot, dry skin, full, bounding pulse.

Belladonna.—Face red and congested; eyes red; aversion to light and sensitiveness to least noise; sudden starts and jerks; tendency to delirium. Especially indicated for children.

Glonoine.—Sudden and intense congestion, with *violent* headache, and absence of fever, especially after heat-stroke, or after suppression of the monthly flow, with great giddiness, throbbing and roaring in the ears.

Veratrum Vir.—Rush of blood to the head with fever; headache; violent throbbing of the arteries in the neck; sensitiveness to sound and light; flushed face; tingling and prickling in lower limbs; full, hard, bounding pulse.

Gelsemium in recent cases of congestion with a dull, heavy, besotted expression of countenance; eyes heavy and bloodshot; dizziness; pulse full and round, but not hard like the *aconite* pulse.

Also *Arnica* when from an injury, or from excessive exercise, with much vertigo. *Ferrum Phos.* when congestion of the head is followed by nosebleed. *Nux Vom.* after indulgence in stimulants, and in chronic cases where there is much mental exertion or a sedentary life.

In ordinary cases not due to over-exertion or heat stroke take moderate out of door exercise; breathing exercises morning and night, inhaling a full breath gradually through the nose and expiring forcibly; cold sponge baths in the morning; warm foot baths; massage and electricity. The diet should be simple and overeating must be avoided. Use no coffee or alcohol; refrain from sexual intercourse; drink plenty of water; find out if you have any disease of the heart or kidneys. In acute cases take a dose of the indicated remedy every half hour for several doses, then lengthen the intervals; in chronic cases, a dose every two or three hours.

Delirium Tremens.—Drunkard's Delirium.

Mania a Potu.

ALTHOUGH this section deals with an extreme manifestation and result of the habitual use of liquor, it is regarded as important to point out wherein a "plain drunk" may be differentiated from a person suffering from an apoplectic stroke; serious mistakes have often occurred. In the person overcome with liquor there is first the odor of alcohol; the eyes are blood-shot, the pupils contracted or dilated; breathing is but little different from the normal; usually there is no paralysis; the pulse is frequent and feeble; the person can be temporarily aroused, as a rule, by shaking or holding ammonia to the nose. In apoplexy there is no odor of alcohol; the pupils of the eyes are unequal in size or dilated; breathing is labored and puffy; there is paralysis; absolute unconsciousness; pulse slow, and strong or irregular. For treatment of apoplexy consult the section on that subject, page 202.

Delirium tremens is a condition characterized by constant tremor, great exhaustion, and distressing illusions and hallucinations, resulting either from the prolonged irritation of the brain by alcohol, or from

the sudden withdrawal of alcohol from the inebriate. A heavy drinker may develop delirium tremens after a sudden shock, fright, accident, etc., or during an acute disease, especially pneumonia. The premonitory symptoms ordinarily are great restlessness, irritability, depression and sleeplessness. The symptoms during an attack are well described on page 191.

Hyoscyamus, 1 x.—Delirium mixed, changing constantly from one form to another, *i. e.*, patient loquacious, furious, muttering, and incoherent; pulse small and quick, very compressible; skin cold and clammy; pupils of the eyes dilated; patient will not stay in bed.

Antimonium Tart.—Much disturbance of the stomach, and ejection of slimy mucus, as when beer has been the intoxicating agent; profuse cold sweats; tongue heavily coated a pasty white or red in streaks; high delirium with obstinate sleeplessness.

Opium.—Lethargic condition; loud labored breathing; loss of consciousness and sensation.

Arsenicum.—A valuable remedy when there is much irritability of the stomach; diarrhœa; frequent passing of urine; muscular tremors; great prostration; also fear, with great anguish and sweat, dread of ghosts, thieves, or of death, and especially of vermin crawling in the bed.

Also *Nux Vom.* is a most reliable remedy during convalescence and also to ward off an attack; a dose three times a day of the third decimal (3 x). To “sober up” a person who is badly under the influence of liquor, give by mouth one small teaspoonful aromatic *Spirits of Amoniam* in a little water. A cup of strong black coffee is a great help; repeat the dose if it is vomited. When great difficulty is experienced in giving the indicated remedy and the patient thinks he is going to be poisoned, give at bedtime one full dose of *Chloral Hydrate*, say thirty grains, rubbed up with equal parts of simple syrup and balsam of peru; this will often induce sleep, and make it much easier to proceed with the regular treatment. *Strychnia* (1 x) every two hours when the heart’s action is weak.

Nourishment is of the greatest importance. Clean out the stomach if necessary by producing vomiting with warm water and mustard, then give strong black coffee to settle the stomach and also to stimulate the patient. Peptonized milk and beef juice given frequently in small quantities are valuable when food is retained with difficulty. Increase nourishment as rapidly as digestion permits, giving egg beaten up in black coffee, strong broths, warm milk, beef tea seasoned with red pepper, egg-noggs.

In restraining a patient use as little violence as possible; use tact and humor them in their fancies; a sheet tied across the bed over the patient is better than using direct force. Keep the windows locked, and remove every cutting instrument, poker, etc. Keep cool and

have someone within call. Use cold baths or cold packs when there is fever, and warm packs as a sedative. When there is a suppression of urine give warm foot baths.

Inflammation of the Brain.—*Brain Fever.*

BRAIN fever may complicate acute infectious diseases or be the result of alcoholic excesses, in uries or sunstroke, or a life of anxiety and privation. This disease comes on with more or less pain in the head, with heat and delirium; eyes blood-shot; high temperature and the initial symptoms followed by drowsiness and inclination to vomit. The pulse is usually rapid and feeble. There is loss of appetite; great restlessness; short naps more like lethargy, and frequent crying out from pain.

Read the symptoms indicating the use of *Aconite* and *Belladonna* under "Spotted Fever," page 867.

Hyoscyamus.—Face pale and sunken; delirium of a stupid, muttering form although this may be preceded by violent outbreaks; the head is shaken from side to side; great prostration; sitting up in bed seems to give some relief.

Also in brain fever following a fall or blow on the head give *Arnica*; if from intoxicating drinks or intense study, *Nux vom.*

Keep cold compresses, an ice bag or ice coil on the patient's head, and be sure the applications are not allowed to become warm. If patient is delirious, endeavor to restrain him by soothing speech, avoiding force as much as possible; cool sponge baths may be given frequently, and milk and broths for nourishment. Remedies should be administered every hour.

Apoplexy.—*Apoplexia.*

ALTHOUGH apoplexy may occur at any age, it is most common after the fiftieth year, because the blood vessels degenerate as one grows older. The abuse of alcohol, immoderate eating, syphilis, and prolonged muscular exertion are among the common contributing causes. Apoplexy is not hereditary as many once thought, but people's arteries and other blood vessels do age earlier in some families than in others. In apoplexy there is great congestion of the blood vessels of the brain, with sudden rupture of one or more of them and consequent hemorrhage, the pressure causing complete or partial paralysis.

When only the left side of the brain sustains this injury, the right upper and lower extremities are liable to paralysis. When the right is similarly affected, the left side usually becomes paralyzed. When the hemorrhage affects both sides of the brain, paralysis is as a rule general, and the patient wholly unconscious. Premonitory symptoms are rare, but when present there is numbness of the hand and

foot on one side, and failure of memory for words. An excellent description of the various forms of apoplexy is given in this book under allopathic treatment of diseases, and the recommendations for the prevention of future attacks should be carefully read also.

Aconite.—Pulse full and strong; skin dry and hot; vertigo; full feeling in head, with restlessness and anxiety; face rather pale or pale on one side and red on the other. A dose every hour, or during an acute attack every half hour for several doses, using the first decimal, 1 x. This remedy takes the place of the old resort to bleeding.

Belladonna.—Face very red; arteries pulsating strongly, pupils dilated, eyes sensitive to light, twitching of muscles, loss of speech; should be given as early in the attack as possible. A dose as above.

Opium.—Heavy stupor; irregular slow pulse; pupils contracted; patient groans; cold sweat on face; feces and urine passed involuntarily; convulsive motion of extremities; irregular labored breathing. A dose every fifteen minutes.

Also *Arnica*, which is a most valuable remedy after the acute symptoms have subsided to bring about absorption of effused blood, and *Sulphur* which follows *Arnica* well when the patient's convalescence is very slow. As a remedy for the prevention of apoplexy *Nux Vom.* should be taken by full-blooded persons or those of sedentary habit accustomed to a rich diet or alcoholic stimulants, and subject to rush of blood to the head.

General treatment of an acute attack must be commenced immediately. Get the patient to bed if possible, and loosen or remove all clothing, especially about the neck, moving the sufferer as little as possible. Cut the clothing off if necessary. Keep the head higher than the body, and the neck in such a position that the blood can flow freely. Put hot water bags to the feet, with flannel between so as to avoid burns, and an ice bag, ice cap, or ice cold compress to the head; the legs may be wrapped in cloths wrung out in steaming hot mustard water, a cupful to a pail. The bowels must be freely opened by a large warm soap and water enema, or by calomel, if necessary. The water may have to be drawn from the bladder. Keep the patient absolutely quiet; give nothing but milk or broth. Gentle rubbing of the body, fifteen minutes only at a time and always rubbing away from the head will benefit during convalescence, also electricity after from two weeks to a month. Apoplexy may be mistaken for alcoholism; smell the patient's breath. Do not give any stimulants.

Sunstroke.

SUNSTROKE is heat-stroke, and persons stricken down in boiler rooms, foundries, laundries and kitchens must be treated the same as those affected by the direct rays of the sun. Mild cases exhibit

only weakness and faintness; severer cases, pallor of the face, blindness, cold sweat, and partial or complete unconsciousness; there may be profound collapse, delirium and death. Previous attacks and the use of alcohol predispose to heat-stroke.

Glonoine.—From excessive heat or exposure to sun; face pale; pulse round and full; intense, throbbing headache; feeling as if the head would burst open; labored respiration; sinking sensation in stomach, nausea and vomiting. A dose every fifteen minutes, increasing the intervals as the patient improves.

Belladonna.—Severe headache in forehead and temples, worse when stooping; flushed face; throbbing of arteries in the neck; bounding pulse; sometimes loss of consciousness and convulsions. Give as above.

Gelsemium.—Great prostration; soft pulse; vertigo; blurred vision; fullness and weight in the head; also for oppressed feeling, irritability, and palpitation of the heart from exposure to heat. Give as above.

Also *Veratrum Vir.* when the face and head are intensely congested, and vomiting and convulsions occur.

Natrum Carb. invaluable in curing the after-effects of heat stroke, such as loss of memory, depression, prostration, and constant headache, also when heat affects head unpleasantly in hot weather.

Prevention is even better than cure. Eat little meat in hot weather; keep the bowels free; drink plenty of water, *not iced*; wear light weight and light colored clothing; bathe often. If working in the sun put a wet leaf or sponge in your hat; quit work and rest in the shade if dizzy or head aches.

If treating a case of heat stroke, place the patient in the shade, or in a cool room; loosen the clothing, or remove it and sponge the body with tepid water; apply cloths wrung out in *hot* water to the head and change them *frequently*; put hot bricks, or a hot water bag, to the feet if they are cold; as soon as the patient can swallow, give hot milk, beef tea or coffee in small quantities.

Spotted Fever.—*Cerebro-spinal Meningitis.*

No disease of modern times is more dreaded than epidemic "spotted fever." Not infrequently cases of meningitis occur scattered here and there, but too often an epidemic prevails confined to a town or city, but caused by the spreading of the germs. It is believed the germs are most apt to enter the system through the nasal passages. Common complications are influenza, pneumonia, pleurisy and mumps, in fact nasal catarrh or grip often precedes the development of meningitis. The germs affect the membranes covering the brain and spinal cord, and a turbid fluid forms which presses upon the sensi-

tive nerve tissues causing immediate and serious results. The onset of spotted fever is generally sudden, with headache, severe chill and vomiting. There is fever, with full strong pulse, and painful stiffness of the muscles of the neck. The headache increases, the patient sees double or cannot see, and is highly sensitive to every noise; has severe pains in back and legs, while the neck may be drawn backward and the muscles become rigid. The headache is very severe, and delirium or lethargy result. Reddish, purple or mottled spots appear on the body giving the common name, "spotted fever." About one-half of the cases die within five days; when recovery ensues, convalescence is slow and tedious and relapses may occur, or other diseases develop. It is necessary to know the symptoms so that the gravity of the disease may be appreciated and a good doctor called, but treatment should be commenced immediately, and a dose of the indicated remedy given every hour. Use the tincture or first decimal (1 x).

Aconite.—Fever; dry, hot skin; full pulse; face flushed and swollen; burning sensation in head; surface of the body cold.

Belladonna.—Follows *Aconite* well; throbbing arteries; quick pulse; face red and swollen; eyes bright; boring of head into the pillow; great sensitiveness to light, touch, and noise; twitching of limbs; unconsciousness; delirium.

Gelsemium.—Early in the attack; spine very sensitive; severe chill followed by fever; great prostration and drowsiness; weak, irregular pulse; dimness of vision; mental dullness; may be nausea and vomiting.

Veratrum Vir.—Violent vomiting, and pain in the head and stomach; convulsions; head bent backward; pupils of eyes dilated; eyes roll from side to side; slow, irregular pulse.

Cimicifuga.—Intense pain in the head and spine; muscles of the neck and back rigid, with retraction; skin sensitive, muscles sore; muscular spasms and jerkings of legs and arms.

The general care of the patient is of the utmost importance. He must be kept perfectly quiet in a well-ventilated darkened room. Hot baths and especially hot packs are beneficial. An ice cap may be applied to the head. Keep the bowels open and give the patient plenty of water to drink. Give nothing but liquid food, milk and strong broths, until the fever and worst symptoms subside; no stimulants unless the pulse and breathing are feeble. Many times physicians puncture the membranes of the spine with a certain kind of needle and withdraw some of the fluid which has formed, thus relieving pressure, or remove a small section of the skull for the same purpose. Injections of antitoxin are also used.

Prevention of "spotted fever" is most important, and consists in keeping streets, yards and cellars clean, and the general health in

good condition. Cleansing of nasal passages and throat morning and night, by douching with a mild antiseptic is recommended during an epidemic.

Inflammation of the Spinal Cord.—*Myelitis*.

THERE are several forms of this disease which is not an uncommon one, but all are characterized by a diffused inflammation of the spinal cord, with softening of its substance; the membranes may or may not be seriously inflamed. It is always of advantage to know the causes of a disease. The most prominent ones of a myelitis are exposure to cold, a bad wetting, or lying on cold, damp ground, muscular strains, syphilis, sexual excess, injuries such as fracture of the spine, or even apparently slight injury, one authority citing a case in a boy, following a sprained back acquired by throwing a club up into a tree. Myelitis also sometimes is a sequel of acute infectious diseases such as smallpox, typhoid or typhus fever, inflammatory rheumatism and measles, and may complicate child-bed fever and diseases of the bones of the spine.

The early symptoms resemble those of any acute inflammatory affection, chill, high temperature of from 101 to 104 degrees, rapid pulse and prostration of the whole system, but special symptoms quickly appear such as heaviness and dragging of the limbs followed by loss of motion and increasing paralysis, numbness and crawling sensations. When the region affected is the upper part of the back, there is a feeling as if a belt were drawn about the waist. There is not much pain in the back, but the pain in the legs or abdomen in the beginning. The point to which insensibility to touch extends marks the location of the disease. The patient may have difficulty in urinating, and the bowels be constipated. Paralysis of the rectum and bladder is marked when the lower third of the cord is affected. Bed sores are liable to result from even slight pressure. The prospects of recovery are not good; death may occur in three or four days or a few weeks, or the acute form of disease become chronic; recovery generally occurs promptly if at all.

Aconite.—In the beginning, after exposure to cold, cold winds; chill followed by high fever, rapid bounding pulse; pain and stiffness of the neck; skin red, hot, shining.

Mercurius Iod —In cases due to syphilis with progressing paralysis of the extremities, and of the bladder and lower bowel, with tendency to twitching and convulsive movements; some spinal pain worse from pressure. This remedy is followed well by *Kali Iod.* in markedly syphilitic cases.

Arnica or *Hypericum* may be indicated, the former in myelitis following wounds, falls or blows, with a bruised, sore feeling, and especially after great muscular exertion; the latter in cases following

injuries to the nerves as in lacerated or punctured wounds, concussion of the spine and injury to the end of the spine from a fall.

Also *Dulcamara* in myelitis after getting soaking wet or being out long in wet, foggy weather.

Rhus. Tox. in cases developing during inflammatory rheumatism. *Arsenicum Album* when a sequel of acute infectious diseases, or resulting from the direct absorption of septic matter as in child-bed fever. *Strychnia*, one-sixtieth of a grain three times a day in cases becoming chronic. *Hyoscyamus* in cases marked by paralysis of the bladder and lower bowels and convulsions. *Belladonna* is a remedy more truly indicated where the coverings of the cord are highly inflamed, resulting in spinal meningitis with much pain and tenderness along the spine.

The patient should be kept absolutely quiet in bed, scrupulously clean by means of luke warm sponge baths, and the back and all parts where pressure is felt gently rubbed twice a day with alcohol, then thoroughly dried and dusted with talcum powder. Keep the sheets free from wrinkles. Bed sores are the greatest danger, therefore if the skin gets reddened despite alcohol rubs and powder, use air cushions or rubber rings, or place the patient on a water bed. Consult the section on "Bed Sores." Electricity along the spine will benefit chronic cases, but must not be used while the disease is acute. Leakage of urine into the bed must be prevented by the use of absorbent cotton, or a bed urinal. Equal parts of iodine and arnica tincture may be painted along the spine twice a week in chronic cases.

Paralysis.—Palsy.

PARALYSIS is a loss of power of motion, and as a common term is often applied to loss of any kind of bodily function, such as sensation or secretion. Paresis is a term used to indicate a partial paralysis; do not confound it with the term general paresis, which is a form of insanity. Paralysis is generally a symptom of disease of the brain or spinal cord, but sometimes it arises from injury or pressure upon a nerve trunk, or from the effects of poison on the nervous system. There are many different forms of this dreaded affection; several of them are well described in earlier pages of this work to which the reader is referred.

There may be a hereditary tendency to paralysis due to the bad habits of one or both parents, such as intemperance, the excessive use of tobacco, chloral, cocaine, or some form of opium. Local paralysis such as wrist drop is caused by lead-poisoning, facial paralysis by pressure on nerves leading to the face, and the paralysis of diphtheria from inflammation of certain nerves supplying the throat, eyes, etc. Paralysis in those of a highly nervous temperament may be simply an hysterical inflammation.

Aside from the special forms is the paralytic stroke which may be

preceded by numbness, coldness, paleness, and slight convulsive jerking or twitching. The loss of motion, or motion and sensation which follows may be partial or complete, and affect either the upper or lower half of the body, or one or both sides. The patient's return to his usual condition is generally slow and imperfect, and sometimes the muscles of the affected portion of the body waste away.

Aconite.—Premonitory symptoms and acute attacks; numbness, crawling sensation, feeling as of pins and needles in legs and arms, or loss of motion and sensation.

Gelsemium.—Paralysis not due to organic disease; loss of motion but not of sensibility, also when paralysis is preceded for some time by giddiness and heaviness of the limbs, the eyelids feel heavy and droop. Useful in paralysis following diphtheria.

Conium.—Sensation is not much affected, but motion, especially of the legs, is lost partially or wholly. Paralysis in old people, or when preceded by stupefying headache, vertigo, great drowsiness, heat in the head and eyes, with coldness of the hands and feet, dilatation of the pupils of the eyes.

Phosphorus.—When the paralysis is confined to either the upper or lower extremities and is preceded by debility and exhaustion; in cases of softening of the spinal cord; wasting away of the muscles of the legs or arms.

Mercurius Vivus.—Paralysis due to syphilis or hemorrhage of the brain; rigidity of the lower limbs with cold sweat at night.

Nux Vom. in threatened paralysis due to intemperance; patient finds difficulty in guiding himself, and trips over trifling obstructions; twitching of the limbs at night; of no use when loss of motion is complete.

Also *Causticum* in paralysis associated with marked disturbance of the urinary organs, when the extremities tremble on walking or standing, but not on sitting. *Ignatia* in cases of hysterical origin. *Arnica* in paralysis due to shock or a fall, and facial paralysis from an injury, with much soreness of the affected parts, and inflammation of the nerve.

Belladonna, recent cases especially of facial paralysis with much congestion of the affected part; throbbing and inflammation; also right-sided cases of paralysis of the body. *Plumbum* paralysis is due to disease of the spinal cord with wasting away of muscles.

Give the indicated remedy three times a day; keep the patient quiet in bed, and let the diet be light and nutritious. Friction of the affected parts or massage and passive motion is helpful, also electricity, but not while there is an organic cause. When there is wasting of the muscles, rubbing with cod liver oil, or cocoanut or sweet oil is recommended. In paralysis in children cold spinal douches are excellent, also persistent bathing with salt water, followed by brisk rubbing.

Hydrophobia.

THE bite of a rabid dog, wolf, skunk, cat or fox may cause hydrophobia. Lacerated wounds about the face, head or hands are most apt to be infected, but the disease develops in only fifteen per cent. of persons bitten. The period of incubation is shorter in children than in adults, and is generally under two months; in rare instances two years may elapse. The symptoms are stated on page 208.

Belladonna, 1 x.—Give this remedy at once, frequently, for at least six weeks, and also at any time afterwards if convulsions occur, with great burning and much frothy mucus in the throat; constriction of the throat on attempting to swallow; face red and bloated; foaming at the mouth; spasms; delirium. A dose every half hour during an attack.

Scutellaria, 1 x.—Restlessness at night; frightful dreams; heart's action rapid and uneven; with pain, tremors and muscular twitchings; when hydrophobia develops with spasmodic or constrictive closing of the jaws, and rigidity of the muscles of the face. A dose as above.

Stramonium, 1 x.—Extreme irritability; disturbed sleep with horrible dreams; and sudden shrieks; pupils of the eyes dilated; when hydrophobia develops, delirium, biting and tearing, frothing at mouth.

The first thing to do if there is no abrasion of the mouth, is to suck the virus from the wound, or if there is no one to do this, to cauterize the wound with nitrate of silver or a live coal, a white hot iron, poker, stove lifter, flat iron; bromine, fuming nitric acid or pure carbolic acid may be used. Poultice the wound, and keep it open several weeks. If anywhere near the Pasteur Institute in New York or other cities, send the patient there for inoculation with the attenuated virus. Antitetanic serum has also been used elsewhere in cases of hydrophobia, but results have not been uniformly satisfactory.

Lockjaw.—*Tetanus*.

TETANUS is now known to be a germ disease, scientists having isolated a specific organism which occurs in the earth, and sometimes in putrefying fluids and manure. In rare cases lockjaw results from exposure to cold or sleeping on cold, damp ground; commonly, however, it follows a punctured or bruised wound of the hands or feet, sometimes a very trifling injury. The symptoms usually appear within two weeks. The virus of tetanus is perhaps the most virulent poison known; it is produced by the bacillus or germ already mentioned, the bacillus forming at the site of the wound, but the poison developing in the blood and organs of the body. Even babies

may contract tetanus, and these cases are nearly always fatal. The mortality is always very high whatever the age, and when death ensues it usually takes place in from three to seven days from respiratory spasm, heart-failure, or exhaustion from the long-continued spasm. Considerable time elapsing between receiving the wound and the development of lockjaw, absence of fever, spasms confined to the neck and jaw are favorable indications, also lessening of the number of spasms and increased ability to sleep. Consult page 210 for a description of the symptoms. Tetanus is more common in hot than in temperate climates, and in males than in females.

Belladonna.—Stiffness of the jaws with convulsive movements, grinding of teeth; dilated pupils; foaming at mouth; difficult swallowing; shooting pains; staring eyes; spasmodic breathing; restlessness; involuntary discharge from bowels and bladder; sleeplessness; congestion of the head and spine.

Aconite.—Rigidity of the lower jaw; face covered with cold sweat; stiffness of the limbs; head and neck bent backward; more or less fever; numbness and tingling. Tetanus following exposure to cold, or cold and a wound.

Strychnia.—This is an important remedy, and its keynote is intermittent spasms excited by the slightest touch, noise or motion; during spasm body bent backward, and respiration much disturbed; stiffness of limbs; muscles very hard; patient fully conscious during spasm.

Hydrocyanic Acid.—With this remedy the spasms are more persistent; there is bloating of the face and neck; eyes protrude and glisten; body bent forward or backward; pulse irregular.

Cicuta Virosa.—Especially in tetanus following injuries to the head or face. Rigidity of the lower jaw; spasms of the wind-pipe; deadly paleness of the face; eyes fixed; foaming at the mouth; body bent backward; whitish ulcers on the border of the tongue.

A dose of the first decimal (1 x) of the indicated remedy should be given every half-hour or hour according to the condition of the patient. Absolute quiet in a darkened room is essential; the nurse should wear felt slippers; allow no draught or cold air to strike the sufferer. Give abundant nourishment, milk, raw eggs beaten up, and egg-noggs through a quill if the jaws are rigid or a soft catheter run up through the nose and down into the throat, or a stomach tube. Rectal injections of liquid food may be necessary, and should be given every four hours. Warm baths and hot packs aid in relaxing the spasms. Treatment must be begun at the earliest possible moment. A wound must be thoroughly cleansed with hydrogen dioxide, if possible, then cauterized with nitrate of silver or nitric acid, and drained if necessary. A hot iron, live coal or even a lighted cigar may be used as a cautery.

Modern science has produced an antitoxin serum from the blood of an animal which has had the disease. This serum has proved valuable in treating many cases of lockjaw. All important dealers in drugs have this serum for sale; Behring's and Park, Davis & Co.'s are among the most reliable preparations.

Epilepsy.—*Epileptic Fits.*

THIS disease is termed the "falling sickness," as without warning the patient loses consciousness, and falls insensible, with convulsive motion of the limbs, distortion of the muscles of the face, frothing at the mouth. Sometimes the mouth, lips and jaws are spasmodically closed, the hands clinched, and there is a general rigidity of the muscles of the entire body. After a time this rigidity passes off, and all the muscles become relaxed; the patient then appears to be in a deep slumber, and remains so for a longer or shorter period, exhibiting weakness on awakening, but no recollection of what has occurred. Epileptics from birth or cases of long standing are rarely cured, but the frequency of the attacks can often be lessened, and the general health greatly improved. This is a discouraging disease to treat, and whatever treatment is adopted must be persevered in for months and even years. Many fits, so-called, are not epileptic but epileptoid, that is, resembling epilepsy. Read the sections on "Hysteria" and "Worms."

Belladonna.—In recent cases, especially in the very young, with much congestion of the head, and peevishness; excitability and vertigo between the attacks; jerking and starting in sleep.

Cyprum.—Trembling, tottering and falling unconscious without a cry; frothing from the mouth; violent convulsions occurring at night; pain in the head and often nausea between and after attacks.

Calcarea Carb.—Attacks followed by headache, dizziness, considerable thirst, vomiting, diarrhoea. During the intervals the sufferer is stupid, peevish, complains of headache before breakfast; face pale and puffed; perspiration, especially of the head and palms of the hands; feet cold and damp. A valuable constitutional remedy.

Indigo.—A prominent and very successful specialist in nervous diseases in Boston writes, (*North American Journal of Homœopathy*, November, 1899), "I have now been trying *Indigo* in nearly all my cases of epilepsy for the past twelve years, and the percentage of actual cures has been so very much greater than from the *Bromides* that I still continue to employ it, with ten per cent. of apparent cures, *i. e.*, patients who do not have an attack for over two years.

Also *Opium* when the convulsions occur only during sleep. *Hydrocyanic Acid* in recent cases with the frequent paroxysms, the jaws set, head thrown back, body stiffened, face flushed, foaming at the

mouth; give five drops of the third decimal, (3 x), four times a day.

The *Bromide of Potassium* or *Sodium* is used by physicians of all schools of practice, but is best administered under a doctor's instruction.

Select the remedy with care and give a dose three times a day for three or four weeks at a time, then omit for a fortnight and again administer. In all cases much attention must be paid to the general health. No tea, coffee, alcohol, rich, spiced, or fried foods must be taken; meats should be used very sparingly; celery, lettuce and water cress, fresh fruits and vegetables are to be chosen, and stale whole wheat or graham bread. Water should be drunk freely, baths taken daily; days should be spent in light labor or exercise and rest out of doors; all excitement, dancing and swinging avoided; the bowels kept regulated; malt and cod liver oil or iron used to improve nutrition; good ventilation secured in the house; all sexual intercourse forbidden. If there is any tendency to masturbation, circumcision should be performed; hemorrhoids or piles must be removed.

Hysteria.

WHILE the causes of hysteria are innumerable, stress should be laid upon the truth that a large proportion of cases are the result of an exceedingly nervous temperament and lack of proper education in self-control. For such conditions parents are directly responsible. A child has a right to be well born, and will not be if parents indulge in sexual excesses, live lives of social or other excitement, if tobacco, stimulants or drugs are used in excess, or if attempts are made to prevent conception. A child should be carefully taught self-control, and not have every whim gratified or every wish deferred to.

Other prominent causes of the development of hysteria are local irritations, uterine or rectal; defective nutrition; fright, grief, domestic worry or other excessive strain on the nervous system; too much mental application at puberty, but in many cases equally due to a child's drinking tea and coffee, sitting up late and having too little out-door life, and too much excitement. For the symptoms of this affection see page 441.

Ignatia.—Attack preceded by sensation of a lump in the throat; during the attack, alternate crying and laughing, flushing and pallor; convulsive movements of arms and legs; screaming; clinching of hands; profuse, pale urine. A dose every fifteen minutes during the attack.

Moschus, 3x.—Great anxiety; palpitation of the heart; tendency to fainting; suffocation; feeling of a lump in the throat, and constriction of chest; alternate laughing and crying; copious flow of pale urine. Give as directed under *Ignatia*.

Pulsatilla.—Hysteria, in mild, sensitive, tearful women, with menses suppressed, delayed or scanty; patient cries apparently without cause. A dose every half hour or hour.

Gelsemium, 1x, an excellent remedy for acute cases of pure hysteria, especially when resulting from, or connected with, a sudden stoppage of the monthly flow from cold or fright, or when occurring in highly sensitive organizations.

Asafetida in from one-tenth of a grain to five grain doses will sometimes give wonderfully good results in controlling hysterical outbreaks, spasms or general muscular tension.

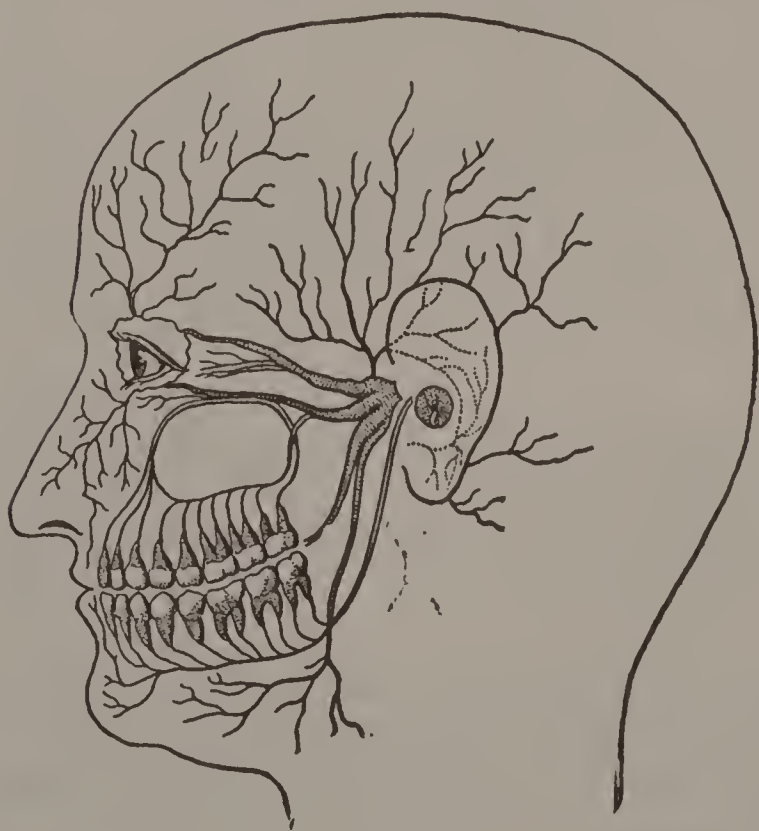
Also the tincture of *Passiflora* in twenty drop to two teaspoonful doses is most helpful in cases where sleeplessness is a marked feature.

Correction of unhygienic surroundings or habits is of the greatest importance. The patient must avoid excitement, late hours, tight clothing, sexual indulgence, stimulating food and drink, should sleep alone on a firm mattress in a well ventilated room, should be out of doors several hours a day, take up light gardening, or have not too tiring exercise. Uterine and other diseases must receive appropriate treatment. A bracing mental and moral atmosphere, sane and cheerful, is highly desirable. Treatment by means of suggestion (hypnotism so-called) benefits many cases, also electricity, massage, frequent warm baths, and a nourishing diet. During an attack loosen the clothing, give air, and sprinkle the face with cold water. Too much sympathy is harmful, but kindness with firmness is desirable.

Neuralgia.

NEURALGIA may occur in the face, head, over the eyes, in the lumbar region, along the spine, in the ovaries, between the ribs or follow the course of the sciatic nerve. Its one great symptom is a darting, cutting or tearing pain, often very severe. The principal predisposing causes in most cases are a nervous temperament, poor nutrition, overwork, and such conditions of the blood as accompany gout, rheumatism, malaria and some diseases of the kidneys.

Decayed teeth or crowding of the teeth may be a cause of facial neuralgia in its severest form known as tic dolor-



eaux, or pressure on a nerve from a bony growth, exposure to cold or wet, also excessive excitement or emotion.

Aconite.—Neuralgia after exposure to dry cold; face red and hot; pains very severe, lancinating, pulsating, and almost unbearable at night; great restlessness.

Belladonna.—This remedy resembles *Aconite* in many of its symptoms, but there is very marked sensitiveness to the slightest jar; the attacks come on with great suddenness, causing flushing of the face and throbbing pains, worse toward midnight; much mental irritability.

Colocynth.—Neuralgia from exposure to damp cold in gouty persons; tearing, drawing pains, much worse from moving muscles of face; better from warmth and rest; heat, redness and swelling.

Spigelia.—Jerking, tearing, or pulsating pain in the face, sometimes periodical, with feeling of anxiety in the heart and great restlessness; worse from motion and touch. Adapted to acute cases.

Arsenicum.—Purely nervous cases suffering from malaria, influenza or great debility; burning, agonizing pain, much worse toward night, with great restlessness and anguish; easier while moving about.

Cimicifuga.—Reflex neuralgia from diseases of the uterus or ovaries, or of rheumatic origin; sharp, lancinating pains over the eye or between the ribs, better at night; much mental depression.

Iris Versicolor.—Neuralgic sick headache involving the temples and eyes; sharp, shooting, cutting pains beginning in the morning and lasting for hours, causing burning in stomach, nausea and vomiting.

Paint the course of the nerve with the mother tincture of aconite or belladonna, or apply chloroform liniment, or cocaine. Counter irritation, even the actual cautery may be required. Either hot or cold application may give relief; regular gymnastic and breathing exercises are of value, also frequent treatments with electricity; change of air; nourishing, digestible food; baths with friction; massage, and rest from overwork. Defective teeth should be filled or removed.

In intercostal neuralgia, *i. e.*, between the ribs, where breathing is painful, a broad strip of cotton cloth may be drawn tightly about the chest and fastened, so that motion may be limited.

Sciatica.

ALTHOUGH sciatica is a true neuralgia it is thought of by most people as a distinct disease, and therefore is given this separate section. The pain follows the course of the sciatic nerve, extending from the hip to the leg and foot, and may even be felt in the inner

side of the knee joint. Exposure to cold and excessive physical exertion are prominent causes; gout, muscular rheumatism and the highly nervous temperament predispose one to it. It occurs more often in men than in women. The pain is very severe in acute cases, which should run their course in about six weeks, but may become chronic.

Aconite.—Recent cases, especially if accompanied by fever; great restlessness; severe, shooting pains darting from hip to ankle.

Arsenicum.—A most important remedy, especially in chronic cases; attacks occurring about once in so often; burning pains, with anguish and great restlessness.

Rhus Tox.—Sciatica alone, or associated with rheumatism, from exposure to wet, from straining or lifting; worse in damp weather, and from lying quiet; numbness, stiffness and crawling sensations.

Refer also to the remedies under "Neuralgia," especially *Colocynth* and *Belladonna*. In young, very nervous persons *Chamomilla* has been used with success when the pains are drawing, tearing and intolerable, with a sensation as if almost paralyzed.

Sufferers from sciatica should stay in bed or in the house with the affected leg at rest, and as nearly immovable as possible; air cushions may be used; hot water bags give some relief; hot mineral mud baths are recommended, also electricity, flannels wrung out in hot water, gentle massage in cases that can bear it. Acupuncture, *i. e.*, the running of a needle into the most painful spot about two inches, and leaving it there fifteen or twenty minutes is often resorted to. Good results are obtained by applying antiphlogistine along the course of the nerve. Nerve-stretching is also another approved method of treatment, and even a cutting out of a portion of the nerve.

Nervous Prostration.—*Neurasthenia.*

NEURASTHENIA is a condition of weakness or exhaustion of the nervous system, causing various forms of mental or bodily inefficiency. The inheritance of a defective nervous organization predisposes to it, but the exciting causes are many, and are serious because our present manner of living at high pressure, demanding the most rapid forms of transit, the luxuries of life, the maximum of display and excitement has a tendency to multiply the number of cases of nervous exhaustion, and even the number of the insane. One of the most common causes of neurasthenia is worry and anxiety dependent upon competition in business, and mental strain. Neurasthenia may follow influenza, typhoid fever and syphilis; the use of cocaine, alcohol, tobacco, sexual excesses, grief, disappointments, and religious emotion.

The chief symptoms are inability to concentrate the mind; low spirits; sleeplessness, disturbed sleep, or drowsiness; great annoyance over trifles, the "irritable humor," sensation of pain in some special region of the body; pressure in the head; disturbances of vision; acuteness of thought, or absence and dullness of mind; flushes of heat and disorders of digestion.

Picric Acid.—Headache, generally in the forehead or back of the head, brought on or aggravated by the least mental effort; speedy exhaustion from least exertion; great chilliness, followed by cold, clammy sweat; patient feels "tired all over."

Phosphoric Acid.—This remedy has more irritability with the weakness than *Picric Acid*; the sufferer is highly sensitive to noise, odors, changes of temperature; exhaustion from over-work; loss of sexual power; emissions; confusion of thought; head heavy; back and legs weak; night sweats.

Silicea.—Nervous exhaustion with dread of any exertion of mind or body, but when once warmed up to his work the patient does very well. There is numbness in the fingers and back, and constipation.

Zinc Phosphide.—Brain fag of business men who grow haggard, pale, sleepless, and suffer from depression of spirits and worry; back-ache, and burning along the spine; crawling sensations in the legs; all symptoms worse from wine.

Ignatia.—Sleeplessness; apprehension; poor memory; trifling causes provoke weeping; loss of appetite; sense of repletion after but a mouthful of food; palpitation; coldness of the extremities; loss of sexual desire.

The general treatment must be adapted to each individual case. The "rest cure" of late years has created great enthusiasm, and patients have been kept in bed and hardly allowed to move, certainly not to wash their face or brush their teeth. In a modified form this treatment is excellent for patients exhausted by over-work, noise, confusion; by being "rushed to death." Other cases require change of scene and occupation; the man who works with his head, work he can do with his hands like carpentering, gardening and the like. Some are benefited by an ocean voyage; dwellers in the country confined to a limited routine may require the mild excitement of city life. Rest in the shape of lying down after meals, or lounging about for an hour or so is very beneficial, also early retiring at night, as much nourishment as can be assimilated, especially in the form of raw eggs, custards, milk, buttermilk, cream and butter; fat meats in small quantities at a time; bacon, lamb and chicken; chocolate and cocoa, but no tea or coffee. Massage is indicated in almost every case, and freedom from care and worry in every instance. Treatment by electricity may be indicated. The section on "Hydro-Therapy" should be read with care as baths and spinal douches are most help-

ful. Many cases of nervous prostration recover with far greater rapidity among strangers, as in a sanitarium, than at home.

St. Vitus's Dance.—*Chorea.*

CHOREA occurs most commonly between the ages of six and sixteen, and more often in girls and young women than in boys or men. Rheumatism, fright or other mental shock, too much school work, masturbation, worms, affections of the organs of generation, spinal irritation, or irritation or debility of the nervous system as a whole, and imitation, are the principal causes. Chorea is characterized by often wholly uncontrollable twitching and jerking of the muscles of the head, face, arms and legs; sometimes one, sometimes both sides of the body being affected. There may be pain in the head and limbs, stammering, digestive disturbances, and night terrors. A more extended description is given on page 213. This affection begins, as a rule, in the hands and arms, then involves the face, and subsequently the legs. From eight to ten weeks is the average duration of an attack of moderate severity, but cases comparatively mild and noticeable chiefly under excitement may persist for months. Recovery is the rule in children, although some chronic cases last years.

Ignatia.—Chorea from fright or other excessive emotion; great excitability or extreme mental depression; tendency to hysteria; cold, emotion, noise or light aggravate all the symptoms.

Arsenic.—Uncomplicated cases with much debility; poor appetite; loss in weight. *Fowler's Solution*, three drops three times a day for a week, increasing dose a drop at a time daily for another week, then gradually decreasing in same manner.

Cimicifuga.—Rheumatic cases, and girls at puberty with neuralgic pains or pains in the muscles; headache; sleeplessness; irritability; depression of spirits. A dose every four hours.

Hyoscyamus.—Severe local twitchings sometimes convulsive, worse after eating; disposition to laugh and perform foolish actions; mental dullness; lack of appetite or very variable appetite; great prostration. A dose every four hours.

Cuprum.—Mild cases without marked symptoms calling for some other remedy; twitchings, especially in the arms; involvement of the muscles of the throat. Dose as above.

Also *Pulsatilla* in girls at puberty who cry and laugh easily in alternation. *Phosphoric Acid* when there is great weakness and prostration; partial loss of voice, and some paralysis of the muscles of the throat; urine looks milky. *Veratrum Vir.* Bad cases, convulsive movements; rapid pulse; congestive headaches. A drop of the

tincture four times a day. Consult the section on "Worms," page 804.

Every effort must be made to improve nutrition; milk, eggs, cream, bacon and cod liver oil must be given; rest in bed for several days is most desirable, and separation from other children, especially those similarly affected. Cheerful, quiet companionship without either severity or indulgence should be given the sufferer. Massage, electricity, warm salt water baths, change of air and scene during convalescence are recommended. When chorea is due to spinal irritation with much sensitiveness along the spine, pounded ice in a towel or ice-bag may be applied for ten minutes at a time; or the back sprayed with ether once a day for ten minutes.

Stammering.

THIS is but another form of Chorea, affecting the organs of speech. *Belladonna*, *Sulphur*, *Hyoscyamus*, and *Causticum* have been employed against this difficulty, and with success. The training of young boys or girls addicted to stammering, to be deliberate in their efforts to express themselves, will often accomplish more than remedies. It is remarked that stammerers can sing, or utter any sentence in song. This would indicate the propriety of enjoining upon all thus affected to practice slow and deliberate speech. *Cuprum met.* is a remedy that has cured many cases; and so has *Ferrum*, *Ignatia* and *Belladonna*. Employ each remedy singly; and repeat every three hours.

Writer's Cramp.—*Scrivener's Palsy.*

TELEGRAPHERS, engravers, book-keepers, copyists, musicians, painters, and seamstresses are liable to this annoying affection as well as writers. A peculiar spasm of the muscles of the thumb, index and middle fingers makes the use of them difficult and painful. The disease is more common in men than in women, and in middle life. There are several varieties of writer's cramp, the spasmodic, which is the most common; the neuralgic; the tremulous, and the paralytic. Treatment should not be deferred, as chronic cases are difficult to cure, and often incurable.

Arnica.—Especially in spasm due to fatigue and over-exertion. A dose three times a day.

Gelsemium.—Weakness and loss of muscular power, fatigue after slight exertion; numbness of the hand or aching of the muscles. Give as above.

Entire cessation of the employment causing the cramp is necessary. Galvanism and massage are the best forms of treatment. For slight cramp rub the hand with spirits of camphor. Use a large pencil or penholder. Improve the general health by an outdoor life; simple, nourishing food; the avoidance of excitement, and use of stimulants.

Cramps in the Legs.

THE nervous, involuntary, strong contractions of the muscles of the feet or legs, which constitute cramps, often occasion much pain. They are due, as a rule, to cold, over-exertion, pregnancy, and sometimes to indigestion, and occur mostly at night.

Cuprum.—Nervous contractions of muscles upon going to bed. A dose night and morning.

Nux Vom.—Cramps accompanying indigestion, more or less numbness in the legs as if they would “go to sleep.” A dose three times a day.

Veratrum Alb.—Cramps in the legs during pregnancy or from cold, with sensation of weakness and inability to walk. A dose night and morning.

Arnica.—Muscular contractions from fatigue. A dose every two hours.

Pressing the foot firmly against the floor or wall, or holding it tightly may give relief, also rubbing the legs with spirits of camphor or equal parts of warm olive oil and chloroform. Rub the legs often and keep them warm and dry. Avoid all exposure to cold and damp.

Mental Derangement.

IN a work of this kind it is not possible to describe all the various forms of mental affections, or to give the treatment in such detail as to make it possible for every case to receive benefit. But even the briefest reference to the subject would be incomplete, without calling attention to the great responsibility which rests upon every individual to lessen in themselves and in others the possibility of the development of these distressing and often incurable affections. When it is remembered that every thought and emotion leaves an indelible impression upon the substance of the brain, the most delicate and intricate structure known; that many avoidable diseases react most disastrously upon the brain and important nerve centers, and that the tendency to insanity is transmitted from parents to children through generations, it must be plain to the most thoughtless that every person is in duty bound to aid in making any form of mental derangement as nearly unknown as modern conditions of civilization permit.

The causes of defective mentality and insanity are largely preventable. That children shall grow up and end their lives in insane asylums it is not necessary that insanity should be in the family, as the phrase is. The offspring of drunkards, syphilitics or those who have lived licentious lives, or are confirmed users of drugs such as cocaine and opium, or children conceived with one or both parents

under the influence of liquor, or during lust, rage or fear, will in all probability exhibit some mental as well as physical stigma, may be mentally defective if not idiots or imbeciles, and may eventually become insane. From this class some of the worst criminals come, committing the most revolting crimes.

The state of mind of the mother when carrying the child is of the greatest importance to its future welfare.

Some of the causes during the life of the individual predisposing to some form of insanity are: Defective nutrition; injuries to the brain; the cramming system in schools; masturbation; dissipation; sexual excesses; disappointment of natural ambition, or, on the other hand, limitless ambition allowed to interfere with normal, healthy living.

All attempts to care for the mentally deranged must include general treatment. No drugs will take the place of the many other agencies now used by all qualified practitioners of medicine. It is thought wise to place these instructions here, that whatever the kind or degree of derangement in a given case the reader may have to deal with, he may first avail himself of these suggestions.

A distinguished alienist of Johns Hopkins University has said and most truly: "The first requisite in the treatment of any case of ordinary insanity is a good nurse; the second, a good cook; and the third, good air with pleasant surroundings." Patients that are quiet and harmless can be treated at home, and many other cases if competent nurses can be procured to attend them night and day. All cases require a quiet, kind manner, fearlessness and self control in the attendant; gentle discipline, and a watchfulness not too obvious. Nutrition is of great importance; eggs and milk are the best foods, and are generally well borne in the form of egg-noggs, when there is no organic disease of the brain, or egg and milk, raw eggs, soft custard, plain milk warmed for patients having little vitality; often ten or a dozen eggs, and several quarts of milk can be taken in the twenty-four hours, all depends on the digestion. Other valuable foods are chicken, clam, oyster and other broths, but not an excess of meat soups; gruels of rice, barley, oatmeal and other cereals, and vegetable soups, especially celery and bean soup; vegetables, especially lettuce and spinach, and fresh fruits if they agree. Patients may have to be fed by nourishing rectal injections, or food given in small quantities by means of an ordinary soft bulb syringe through a soft rubber tube passed into the nose and beyond to the stomach. During convalescence the nervous and excitable patient will be benefited by the use of cream, butter, salad oil and cod liver oil. Lamb, fowls and sweet breads are the best meats. Encourage the patient to drink a great deal of water. Rest in bed is of great service to patients much debilitated or exhausted. Warm sponge and tub baths are beneficial, the latter followed by the use of cooler water and friction, also rubbings with cocoanut oil, ninety-five parts and hyperi-

cum tincture five parts. Next to rest comes amusement and not exhausting exercise; gardening can be recommended, also music, dominoes, billiards. The use of well chosen music as a healing agent is now receiving much recognition.

When restraint is required in an excitable case it should be as mild as is consistent with effectiveness. If a patient in bed insists on getting up and is not violent, put him gently back again, encouraging him to remain there and acting as if you expect he will. It is really surprising what an effect such treatment often exerts when pursued by an attendant fully master of the situation. If necessary a wide band of cotton cloth may be secured about the upper part of the body, and a strip of cloth on each side fastened to the bed rail. A "protective sheet" so-called, is applied in addition to the body bandage, and leaves only the head and neck exposed; fasten the ends and sides to the bed rails by tapes sewn to the sheet. Canvas mittens padded with cotton or cotton batting will keep a patient from injuring himself or tearing his clothes, etc. A very violent patient can be rolled up from neck to heel in sheets, being then as harmless as an Indian papoose. Never show fear of an insane person, and never trust one.

Melancholia.

EXCESSIVE gloom, despondency and apprehension are the principal characteristics of melancholia, also a concentration of the patient's thoughts upon himself. Although this disease is not peculiar to either sex, women are more subject to it than men, especially at the change of life. Poor nutrition associated with business reverses, grief, worry, actual want, severe disappointments and hereditary tendency are the common causes. Self-abuse and any form of dissipation predispose to melancholia. Melancholia may occur in childbirth or in nursing mothers when exhausted from prolonged lactation, and may follow the grippe. Suicidal thoughts often accompany this affection, but in simple cases the patient's will power is sufficiently strong to counterbalance them; in acute cases, however, the sufferer should be closely watched. Melancholia may develop into mania, or complete recovery may ensue.

Nux Vom.—Slow pulse; lack of appetite; constipation; great depression of spirits; obstinate silence; involuntary sighing and moaning.

Veratrum Alb.—Great anxiety, despondency, and despair; distrust of everyone; cold sweat all over body, moaning during sleep; frightful dreams; patient fearful and easily startled.

Cimicifuga.—Melancholia after childbirth, with great depression, suspiciousness and apprehension of going crazy; disturbance of menstrual function; rheumatic pains in head and back.

Also *Ignatia*, an important remedy in recent cases, especially from sorrow or disappointments, where patient often weeps or seems full of suppressed grief; sighs and mopes. *Pulsatilla* in weak, feeble, tearful women, with uterine difficulties, disordered menstruation or leucorrhea. *Arsenicum*, chronic cases, with intense anxiety and restlessness; fear of being left alone; general debility, often emaciation; much depression; tearfulness. *Natrum Mur.* attacks of violent weeping; patient sheds tears copiously, and more the more attempts are made to quiet her; if contradicted she becomes irritable.

It should be borne in mind that one of these remedies may be equally well indicated for melancholy and depression of spirits, when true melancholia has not developed, but when the general condition calls for medical as well as moral and hygienic treatment with a view to the prevention of more serious disease.

Mania.

THE term mania is from the Greek, and means "I am furious." It will readily be inferred from this that the mental faculties of the sufferer exhibit a morbid exaltation, and increase of the imagination, with disordered ideas, and disturbances in the centers of the brain which govern motion. There is a mild form characterized chiefly by loquaciousness, restlessness, goings to and fro without object, slight incoherence, unreasonableness, and inability to perform mental work. This state may pass into a more typical form of exaltation, then frenzy, and finally a decrease in the acute and most alarming symptoms. Both mild and typical mania are generally preceded by digestive disturbances, headaches, exhaustion, despondency, unrestful sleep or sleeplessness, followed by excitability, extravagant fancies and ideas, delusions such as conviction of possessing great wealth, positions of high honor, or the patient may have pleasant or frightful visions.

Sufferers from mania often talk with great sense on many subjects; some cases proceed to recovery, but subsequent attacks are common, also the merging of mania in dementia, which is a loss of mental vitality, sometimes to the point of imbecility or, in the aged, dotage. Cases of mild mania with periodical excitability are the most common, and can be treated at home. Causes other than those given under "Mental Derangement," are acute diseases, such as pneumonia and typhoid fever; starvation; organic diseases of the brain; epilepsy; religious excitement.

Aconite.—Acute mania attended with fear, despondency and apprehensions of future calamity; anxious lamentations, with heat of the face and head, palpitation of the heart, and coldness of the extremities; fear of death.

Belladonna.—Hot, flushed face; dilated pupils; throbbing arteries; much restlessness; spasmodic attacks of rage and fury, biting, tearing clothes, striking anyone nearby, and again laughing, singing and even dancing. The *Belladonna* patient is aggressive and destructive and frequently has suicidal tendencies.

Hyoscyamus.—Hysterical insanity in excitable, nervous women; religious mania; patient talkative, frequently good-natured, but may have savage outbursts, with obscenity and exposure of person; fears being poisoned; makes ludicrous gestures and disarranges clothing. The use of this remedy is not confined to women.

Stramonium.—Furious outbursts; incessant, incoherent talk; patient tries to escape; has horrible visions; bites, scratches and screams; is in great fear from his imaginings; has fits of wild laughter, and for days may seem quite busy and cheerful with his own fancies; religious mania.

Tarantula.—Cunning, crafty, mischievous patients, subject to sudden fits of destructiveness, will then laugh and apologize, but must be constantly watched.

Nux Vom.—A valuable remedy in subacute mania, where the patient is suspicious, and thinks he is persecuted or wronged; is obstinate, cross; even ugly; often morose and taciturn; wants to die because life seems insupportable.

Veratrum Alb.—Much physical as well as nervous prostration; wild vagaries; religious excitement, persistent raging with attempts to cut and tear clothing; weeping, howling and screaming over fancied misfortunes, then almost collapse of body and mind; weakness of heart's action; coldness of skin; conviction of being damned.

Other valuable remedies are *Cantharis* with many of the *Belladonna* symptoms, but, in addition, great sexual excitement with imperative desire for gratification. *Opium* when the patient's face is distorted during furious rage; head and face swollen; eyes protrude; lips bluish-red; rage followed by dullness and stupor. *Cuprum* in insanity characterized by full, quick pulse; redness of the eyes; wild looks, incoherent speech and rage, paroxysms terminating with profuse perspiration. *Rhus Tox.* in acute cases having a rheumatic history, and where the patient is extremely restless at night; fears he is being poisoned; has suicidal tendencies. *Arsenicum*, also, has a disposition to commit suicide and the patient is restless, agitated, indifferent to life; the countenance is haggard and anxious, the tongue red, dry and tremulous. *Ignatia* is peculiarly adapted to the hysterical form of insanity with the symptoms given under "melancholia."

Pulsatilla has fear of death and silent anguish, a weeping mood and great depression of spirits, yet with a disposition to commit

suicide. The *Aurum* patient thinks he was not intended for this world but fears he is irretrievably lost as regards the next; is very melancholy, thirsty; has cramps in the stomach and bowels, and wants to commit suicide.

In summing up these remedies the suggestion may be offered that in cases of *Religious mania* one should think of *hyoscyamus*, *stramonium*, *veratrum alb.*, and *aurum*; in *Suicidal mania* of *belladonna*, *arsenicum*, *aurum*, *nux vom.*, and *rhus tox.*; in *Hysterical mania*, of *ignatia* and *pulsatilla*; in *Mania with Fury* of *belladonna*, *hyoscyamus*, *stramonium*, *cuprum*, *opium* and *veratrum alb.*, and that in *aconite* the great symptom is fear, and in *cantharis*, sexual excitement.

Dementia.

DEMENTIA is a term denoting a partial or total loss of the mental faculties; in the latter case it resembles idiocy. Dementia may occur independently of any other form of insanity, or may follow melancholia or mania; it may be acute or chronic, but the latter is the common form. Recovery seldom takes place. The section on "Dementia," page 221, should be read, as it gives a short description of the symptoms of this disease. The general treatment under "Mental Derangement" must be followed in these cases. Masturbation and epilepsy are common causes of dementia, also the prolonged use of alcohol and degenerative changes in old age. The treatment of dementia with masturbation must include local treatment when necessary, circumcision and great cleanliness of the parts, also moral, medical, dietetic and hygienic measures.

Anacardium.—Great weakness and loss of memory; irresistible desire to curse and swear; hears voices and smells odors not present; great sleepiness during the day.

Phosphoric Acid.—Absolute indifference to surroundings; disinclination to talk, with confusion of mind and dullness of brain; weakness in back and limbs; loss of memory; flow of urine very profuse. Dementia due to masturbation or from sexual excesses.

Silicea.—Epileptic dementia in scrofulous children, with constant headache and sensitiveness of the spine; jerkings of the limbs during sleep; constipation; the body poorly developed.

Picric Acid.—Sexual excitement and masturbation; weakness of the back and legs; severe pain in back and back of head; burning along the spine; patient easily prostrated.

Hypochondria.

WHILE hypochondria resembles melancholia and sometimes hysteria, in its true form it is a distinct disease which may be defined

as “ mental depression, without adequate cause; and taking the shape, either from the very first or very soon, of a conviction in the patient’s mind that he is the victim of serious bodily disease.” All his thoughts are centered on himself. A good description of this disease is given on page 224. An inherited predisposition is a frequent remote cause of this condition, and favors its development in persons of dissipated habits, given to intemperance, sexual excesses, masturbation, over-eating, or other vices; or persons suffering from great anxiety or severe mental shock.

Nux Vom.—A remedy always to be thought of in hypochondria in those of sedentary habits, exercising but little, using the head a great deal, over-eating or drinking, indulging in rich or highly spiced food, easily irritated, troubled with flatulence and constipation.

Staphysagria.—Hypochondria due to masturbation, patient moody and taciturn, full of anxious imaginings about his health, etc., has many queer notions; or the memory is weak, the mind confused, the urine deep red or yellow; seminal emissions.

Stannum.—Constant weak, weary feeling of mind and body, although the patient feels better from walking about; has many ailments and exaggerates them all; constipation; pain in the abdomen; night sweats.

Aurum.—Especially serviceable in men; extreme melancholy, sullenness and disinclination to speak; peevishness; vertigo; dwells on religious subjects.

Arsenicum —Burning pains in stomach; great depression; intense anxiety and concern about bodily condition; sleeplessness or sleep disturbed by bad dreams; exhaustion; poor nutrition.

Also *Asafetida* in hypochondria with flatulence, torpor of the liver, indigestion, constipation, loose cough and great depression of spirits. *China* when the patient has a fixed idea he is unhappy and persecuted; is stubborn and unreasonable; digestion slow; may have watery diarrhœa; throbbing headache with ringing in ears; after sexual abuse. Any of the above remedies may be given three times a day.

Imbecility.

CHILDREN may be born imbeciles, or develop imbecility after birth. With care and patience many of these poor unfortunates may be greatly improved both mentally and physically. The intermarriage of those nearly related to each other, and alcoholism, epilepsy or syphilis, in one or both parents accounts for many born imbeciles. Injuries to the child’s head at birth, a blow or fall afterwards, imperfect nutrition, drugging with soothing syrups, infectious fevers,

masturbation, fear and fright, and organic diseases of the brain are causes of defective mentality. Male children are more prone to be feeble-minded than female. The development of the brain and its functional powers is incomplete. Children thus afflicted may be thought blind or deaf in infancy when they are simply incapable of responding to the usual stimulation of light, noise, and color; but sometimes, on the other hand, children whose eyesight is defective, are thought to be feeble-minded when they are not. Imbeciles are generally vain, irritable, mischievous, hard to control, sometimes destructive, cannot fix their attention on one thing, may have difficulty in walking or in speaking distinctly, and exhibit many bad habits.

If imbecility is the result of epilepsy, refer to the remedies mentioned under that subject. When the only indication is the feeble, undeveloped mind *Zinc Phos.* is recommended three or four times a day, and its use continued for months. *Phosphorus* is a remedy well indicated when there is apathy, indifference, stupidity, indisposition to any exertion, mental or physical; slowness of comprehension. Imbecility with great nervousness and masturbation, or softening of the brain. *Sulphur* as a constitutional remedy for the mentally defective when dirty and untidy in all their habits; irritable; selfish; depressed; poor sleepers at night, drowsy during day; sensitive to cold water and cold air. Give a dose every morning and one of *Nux Vom.* at night when with some or many of the above symptoms the patient is constipated, has indigestion and masturbates. *Arsenicum* for poorly nourished patients given to sexual excesses; sleepless or starting in sleep; restless and fearful when awake; for those who have had epilepsy or diseases lessening vitality.

A dose of the indicated remedy may be given three times a day unless otherwise specified. Modern methods followed by qualified practitioners of the leading schools of practice, in dealing with the mentally deficient, include personal care and teaching by attendants of a superior class and, if possible, by those specially trained in this work. There are now admirable homes and institutions, private as well as public, where this class of cases receive judicious instruction adapted to the individual; by this is meant modified mental training, manual training, systematic exercise out of doors and in the gymnasium, baths, electricity, massage, wise supervision of morals and personal habits, and patient and persevering guidance. Under such treatment surprising progress is often made in apparently hopeless or most discouraging cases, and the lives of these unfortunates so often bearing the sins of their fathers, made infinitely brighter and happier.

LIST OF REMEDIES.

Aconite.	Chamomilla.
Arthusa.	Chelidonium.
Agaricine.*	Chenopodium.
Agaricus.	Chimaphilla.
Aloes.	China.
Alumina.*	Cicuta Virosa.
Anacardium.*	Cimicifuga.
Antimonium Crudum.*	Cina.
Antimonium Tartaricum.*	Clematis.
Apis Mellifica.	Cocculus.
Apocynum Cannabinum.	Collinsonia.
Apomorphia.	Coffea.
Argentum Metallicum.*	Colocynthis.
Arnica.	Conium.
Arsenicum Album.	Copaiva.
Arsenicum Iodatum.*	Crotalus.
Asafœtida.	Croton Tiglium.
Aurum.*	Cuprum Arsenicosum.*
Baptisia.	Cuprum Metallicum.*
Baryta Carbonica.*	Digitalis.
Belladonna.	Drosera.
Berberis.	Dulcamara.
Boracic Acid or Borax.	Erigeron.
Bromine.	Eupatorium Perfoliatum.
Bryonia.	Euphrasia.
Calcarea Carbonica.*	Ferrum Macriaticum.
Calcarea Iodata.*	Ferrum Phosphoricum.*
Cannabis Sativa.	Fluoric Acid.
Camphor.	Gelsemium.
Carbo Animalis.*	Glonoine.
Carbo Vegetalis.*	Graphites.*
Causticum.	Hamamelis.

Remedies that are starred should be purchased in the form of triturations or tablets.

Hepar Sulphuris.*	Passiflora.
Hydrastis.	Petroleum.
Hydrobromic Acid.	Phosphorus.
Hydrocyanic Acid.	Picric Acid.
Hyoscyamus.	Pilocarpine.
Hypericum.	Plantago.
Ignatia.	Plumbum.
Indigo.*	Podophyllum.*
Iodide of Antimony.*	Pulsatilla.
Iodine.	Rhus Toxicodendron.
Ipecacuanha.	Sanguinaria Canadensis.
Iris Versicolor.	Santonine.
Kali Bichromicum.*	Scutellaria.
Kali Iodatum.*	Sepia.*
Kali Muriaticum.*	Silicea.*
Lachesis.	Spigelia.
Lycopodium.	Stannum.*
Manganum.*	Stannum Iodatum.*
Magnesia Phosphorica.*	Staphysagria.
Mercurius Corrosivus.*	Stramonium.
Mercurius Iodatus.*	Strychnia.*
Mercurius Solubilis.*	Sulphur.
Mercurius Vivus.*	Tarantula.
Mezereum.	Tartar Emetic.*
Millefolium.	Tellurium.*
Moschus.*	Teucrium.
Muriatic Acid.	Terebinthina or Turpentine.
Natrum Muriaticum.*	Thuja.
Nitric Acid.	Urtica Urens.
Nux Vomica.	Veratrum Album.
Opium.	Veratrum Viride.
Pareira Brava.	Zinc Phosphide.*

Remedies that are starred should be purchased in the form of triturations or tablets.



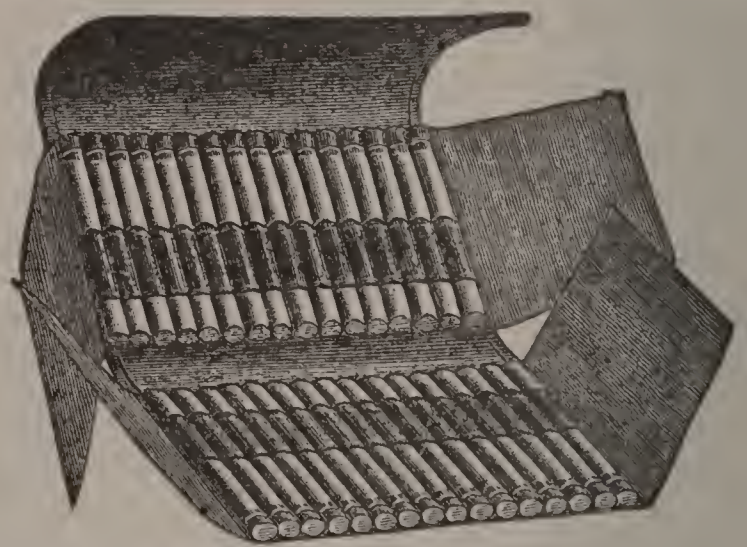
PELLETS



DISKS



TABLETS



MEDICINE CASES

THE above medicines and cases can be purchased at any Homœopathic Pharmacy and it is well to keep a supply on hand for immediate use.

HYDROPATHIC TREATMENT

PROCESSES OF THE HYDROPATHIC TREATMENT.

FOR the description of the hydropathic appliances contained in the following pages, I am indebted, in substance, to the "Hydropathic Family Physician," by Joel Shew, M. D., author of several popular works upon the principles and practice of hydropathy. I have not uniformly adopted his exact language, which is not always the best he might have chosen to express his thoughts.

Priessnitz is admitted to have been the originator of the hydropathic modes of treating diseases. He was an unlearned man, though he had original powers of mind; and, imperfect as the treatment is, he benefited his race by conferring it upon the world.

At first, and for some time, baths were made too cold, and were continued too long; the result was much injury to the patient in many cases. Time and experience have brought a better adaptation of the temperature and continuance of the water appliances to the symptoms, constitution, and temperament of each patient. Formerly, weak, exhausted, and nervous persons, not less than the full-blooded and strong, were put into the wet-sheet pack, and reduced near to death's door; and there is reason to believe that in some cases where the practice is in ignorant hands, this barbarity is not wholly discontinued. The practice, however, is now mainly in better hands; and although I by no means admit its sufficiency as a system of remedial agencies, I am persuaded it is doing some good. Used in connection with the ancient system of regular medicine, which is the joint product of time, science, and experience, the water treatment, moulded and modified to the circumstances and strength of the patient, is an auxiliary of no mean power. As such, I accept it. As such, it is received by hundreds and thousands of regular practitioners throughout the world. Further than this, it never can or will be generally received. By pushing it beyond this, its rightful and honored sphere, its friends only limit its progress and injure its influence.

Division of Baths.

On no one subject connected with hydropathy has there been more "confusion of tongues," than concerning the temperature of baths

Both in books and in popular language, among physicians as well as laymen, have words been used, sometimes confusedly, and at other times without any meaning whatever. Orthodox medical works, as well as the *unorthodox*, come under the same category of error. A few simple explanations on this head, properly made, will be sufficient for all practical as well as scientific purposes.

The simplest and most natural division of baths is into *cold*, *tepid*, *warm*, and *hot*. These are all terms of every-day life, and are fully sufficient to guide us in the selection of any and all the multiform uses of water which hydropathy teaches. I admit, however, that when we wish to be especially explicit, the actual thermometrical temperature should be mentioned. *Hot* baths, I maintain, have no proper place in hydropathic practice. He who resorts to them either does not at all understand the true principles of the Water-Cure, or is guided merely by the whims or caprices of those who employ him.

But whatever words we use to designate the different baths, there is one objection, which is, that all such terms are necessarily arbitrary in a greater or less degree. What appears to one person cold, may to another appear tepid, or warm, or even hot. Thus it is said that on a road over the Andes, at about half way between the foot and the summit, there is a cottage in which the ascending and descending travellers meet. The former, who have just quitted the sultry valleys at the base, are so relaxed, that the sudden diminution of temperature produces in them a feeling of intense cold; while the latter, who left the frozen summit of the mountain are overcome by distressing sensations of extreme heat. If on a cold winter's morning we go from a warm bed to a bath of sixty to seventy degrees Fahr., the water appears cold. If we then plunge immediately into water which is at about the freezing point, and then return again to the water at sixty to seventy degrees Fahr., it appears warm. When the temperature of the atmosphere is at fifty-five degrees Fahr., in November or October, in this latitude, and the body of a comfortable degree of warmth, and we take three basins of water at sixty, seventy, and eighty degrees Fahr., placing one hand in the water at sixty degrees, the other in that at eighty degrees, letting them remain thirty seconds in each, and then immerse them both in the water at seventy degrees, it appears to one *cold*, to the other *warm*.

But we can arrive at rules which approximate so nearly to the actual truth, that they will serve us, as before remarked, for guides in all practical and scientific purposes.

The Cold-Bath. — With a majority of persons, and at most seasons of the year, water at from seventy to eighty degrees Fahr. downward, gives, when immersed in it, a sensation of coldness. The spring-water of all countries furnishes what may therefore be called a cold-bath, although there will be a range of many degrees variation in what we term cold.

The Tepid Bath. — The word *tepid* is from the Latin *tepeo*, to be warm. The true English meaning of the term, however, is, according to Mr. Webster, *moderately warm*, or *lukewarm*; in other words, water which, when a person is immersed in it, gives a kind of indefinable sensation, one which, coming properly under the term neither *cold* nor *warm*, is said to be *tepid*. This temperature will be found to range at from eighty to ninety-two degrees Fahr.

The Warm Bath. — The term *warm* is generally well understood. It means that temperature of water which is peculiarly agreeable to the sensations. Fresh-drawn milk or blood we say are warm. The temperature of water which will cause this sensation varies from ninety-two to ninety-eight degrees Fahr.

The Vapor Bath. — The temperature of the vapor of simple water varies from about ninety degrees Fahr. upward, according to the heat of the water, and the space through which the vapor passes.

The Hot Bath. — The term *hot* is also expressive of its proper meaning. If the body is immersed in water above blood-heat, it causes an uncomfortable sensation, which we designate as *hot*. Hot water is a disturber of the vital functions, particularly if the whole body is immersed in it. Hot baths, therefore, should be used, if ever, only in a most urgent necessity. Hot water, in no form whatever, entered into any part of Priessnitz's treatment.

Having thus explained the temperatures of the different divisions of the bath, it is proper to state them in a tabular form, the better to aid the memory. They are as follows: —

Cold-bath, from freezing point,	. . . . .	32 to 85° F.
Tepid “	. . . . .	80 to 92°
Warm “	. . . . .	92 to 98°
Vapor “	. . . . .	90° and upward.
Hot “	. . . . .	above 98°.

I now propose to explain somewhat minutely, and at the same time with a due regard to the needs of the non-professional reader, the physiological effects of each of the several kinds of bath, and I here respectfully premise that any one who attempts to practise the water treatment without having in his mind clear notions upon this subject is, to say the least, as much a “groper in the dark” as he who attempts the practice of drugs of which he knows nothing, upon the living body of which he knows less. How can a man be trusted in water treatment if he cannot tell beforehand what effect a bath is to have; and this he cannot, if he does not fully understand the meaning of the terms which I have here explained.

Effects of the Cold Bath. — The effects of the cold bath are properly spoken of under two heads, the *primary* and the *secondary*. The terms are sufficiently expressive of their meaning. The first are those which take place at the time of the immersion; the second, those that occur later, constituting what we understand by the term *reaction*.

Immediately on immersion in cold water, the bather experiences some acceleration of respiration and the heart's action, although the pulse becomes at the same time smaller and weaker. Very soon, however, the *panting*, if I may so call it, passes off; the temperature of the body is found diminished, the surface paler than natural, the skin taking on that form of appearance known as "goose-flesh."

The first effect of cold water applied to the body, generally, is to abstract a certain amount of heat from the surface, to constrict the capillary vessels, and to force the blood inward. Now, as the living body possesses the remarkable property of maintaining its temperature at very nearly the same point, whether it is in a colder or hotter medium than itself, the vitals at once set to work in restoring the caloric abstracted by the contact of the water; and as the functions of circulation and calorification go necessarily together, the vital power, acting through the heart and blood-vessels, attempts a return of the blood that had been forced inward by the coldness of the water.

This is what we call reaction. If the individual is sufficiently strong and well stocked with vitality, the blood is quickly returned to the surface and to the extremities (which are always most liable to become cold, being farthest from the heart), constituting what is termed *good*, or *vigorous* reaction. But if the surface and extremities continue to remain unwarmed by this return of the blood to them, as happens in the case of feeble persons, there is said to be *poor*, or *insufficient* reaction. It would then be necessary to give some warming medicine to start the blood circulating.

Effects of the Tepid Bath. — The tepid bath, which we have seen ranges from eighty to ninety-two degrees Fahr., produces effects analogous to those of the cold bath, only not so lasting and permanent. It is especially useful in the treatment of infants and children, and in all cases where the reactive energy is feeble. If in any case we are in doubt as to whether the cold bath is admissible, the tepid form will be a milder measure, and at the same time serve as a test in venturing upon the cold. The tepid bath may be continued longer at a time, which in some cases will be found an advantage.

Effects of the Warm Bath. — There is among hydropathic physicians, if I am not mistaken, too great a fear of warm applications on the part of some, while others go to the opposite extreme. Mark, I speak of *warm* applications. *Hot*, as before remarked, have no proper place in hydropathy, — a rule to which the exceptions are few.

The warm bath, as before remarked, ranges from ninety-two to ninety-eight degrees Fahr. It is not the *most* useful of the hydropathic resources, but *one* of the most useful, as I shall endeavor hereafter to show.

Among the ancient Romans the warm bath was not considered as a means of luxurious indulgence that tended to weaken the vital

powers, but a means of refreshment for the wearied traveller, and of preparing him for the repast and the enjoyment of other rites of hospitality. The effect of the warm bath is not one of debility, as many suppose, but, on the contrary, it is a sedative, lowering the heart's action and the circulation, and tending to repose rather than excitement.

Effects of the Hot Bath. — The hot bath, before remarked, is one which is above the temperature of the blood, ninety-eight degrees Fahr. It was laid down as a precept by Hippocrates, that a bath enfeebles when the heat exceeds that of the body immersed in it. The truth of this precept has often been verified in practice.

I do not wish to be understood as affirming that hot applications can never be made with benefit to the body; on the contrary, heat applied to a part locally may be of service, although I am inclined to believe that even in those cases where heat acts in a beneficial way, some other form of hydropathic appliance can be used more beneficially. I make, it will be remembered, a broad distinction between the terms *hot* and *warm*.

Sea-Bathing.

As regards temperature, sea-bathing comes under the general head of cold baths. Sea-water, however, at those seasons of the year when sea-bathing is resorted to, is of a moderate degree of coldness, varying in this latitude not much from seventy degrees Fahr.

In order to appreciate fully the effects of sea-bathing upon the system, a number of things are to be considered.

Sea-water differs in its effects from common water by its possessing greater density. This circumstance, however, is not of so great importance as that of the stimulating nature of the minerals it contains. The saline ingredient is a powerful stimulant and even irritant of the skin. On account of this property, it is found that an exposure to the action of salt water is not so liable to cause ill effects as that to fresh. The salt causing a degree of heat upon the surface somewhat higher than that of the natural state, the system is for the time shielded from the action of cold. It does not follow from this, however, that a person could live longer immersed in sea than in common water, any more than it follows that because alcohol for a time increases the animal temperature, life can, under circumstances of great exposure to cold, be the longer preserved. This it is now well known is not the case.

An advantage of sea-bathing in the hot season is, that the air at the sea-shore is cooler than on land. That our climate in summer is too hot for the most favorable development of health is proved by the great increase of mortality, not only in our cities, but in other parts, during the hot season. The European cities, with all their numbers of inhabitants, dampness, narrow streets, intemperance,

pauperism, etc., would naturally be expected to show a higher range of mortality than our American cities, but such is not the fact. Even New York, with all its natural advantages, is as sickly, probably, as any of the British or European cities. This, it is agreed on all hands, must be owing in great part to the intense heat of our summer months.

The manner of taking the salt-water bath has some peculiarities which are favorable to health. It is, in the first place, in the open air, which, if the weather is favorable, that is, neither too hot nor too cold, is always a great advantage. Other things being equal, a bath in the open air is always attended with a better reaction and a greater degree of invigoration than one within doors.

In the second place, sea-bathing is usually and almost necessarily connected with exercise both before and after the bath, circumstances which are always highly favorable to the action of cold water. So beneficial, indeed, is exercise taken in this way, that it would be difficult to determine which of the two — the exercise or the bathing — is the more beneficial. In connection, the two act reciprocally upon each other, each rendering the other doubly beneficial.

Injectations.

THE term *injection* implies the act of throwing a fluid into some cavity of the body.

In Water-Cure we inject water more frequently into the bowels than any other cavity. This kind of injection is also called *enema*, or *clyster*.

Most people have so little confidence in simple water, that if a clyster is administered to them, they have no idea that it can operate in so effectual a way as it usually does. Years ago, when the water treatment was much less known than at the present time, I have been suspected of having secretly put some cathartic substance in the water, "for," said the patients, "how is it possible for *water* to act in this way?"

A great variety of injection-instruments have been invented. Some of these are very convenient and useful; others are got up on mere speculation, and are but little worth. Every family, at least, ought to have a good injection-instrument. A lady's toilet is never complete without it. A good article is either manufactured or sold by most surgical-instrument makers and druggists.

Modus Operandi of Water.

It is often objected to hydropathy, that water, being but one agent, cannot be made useful in all diseases. I propose here to make some remarks on *the modus operandi of water*, in which I shall endeavor to explain, not only to the scientific scholar, but to the ordinary reader,

that water is capable of being made available as a remedy,— and that powerfully too,— in a great variety of ways. It then acts:—

1. By its Presence.— Water, as we have seen elsewhere, composes the larger part of the living body, and that without its presence in a large proportion in the living system, the vital processes cannot for a moment go on.

2. By its Coldness.— Cold, within proper limits, preserves and augments life, while heat tends to debility and decay. In proportion as the animal heat is diminished in the different classes of animals, the less is the want of air felt. If in a puppy the eighth pair of nerves be divided, producing a closure of the glottis so that no air can enter its lungs, the animal dies in half an hour, if kept at an ordinary temperature. But if the animal is benumbed with cold it survives the operation for a whole day. Frogs, in the summer, when the temperature of water is elevated, are obliged to come often to the surface for air. But in winter, when the water is colder, they live almost entirely under its surface. A cholera patient in collapse, a person who has been stifled by foul gases, one in the sinking stage of a fever, or fainting from loss of blood, or in any way asphyxiated, desires always coldness rather than heat. It may not be possible in the present state of science to explain these phenomena; but undeniably we have the facts.

3. By Endosmosis and Exosmosis.— Animal membranes have the power of *absorbing* liquids,— called *endosmosis*, or *imbibition*, and of throwing them out, *exosmosis*, or *transudation*.

If we take a portion of the intestine of a chicken, tie one end, nearly fill it with milk, then tie the other end, and lastly immerse it in a tumbler or other vessel of pure water, we find that in a short time the milk passes out of the intestine into the water, and the water inwardly mingling with the milk. This process goes on till the fluid within and without the intestine becomes one and the same. This is a familiar illustration of the principle in question.

4. By Dilution.— Water is the greatest diluent in nature. There is no substance which is at all comparable to it for penetrating the myriads upon myriads of capillaries that exist in all parts of the living structure. When the fluids become thick, viscid, and filled with impure matters, as is usually the case to a greater or less extent, in disease, it is an important object to dilute these matters. For this purpose water is the only available remedy.

5. By its Tonic Effect.— Water is the greatest of all tonics, and possesses the valuable property, not of wearing out, but of increasing in its good effects.

6. By its Excitant or Electrical Power.— A man feels dull and stupid from excessive bodily or mental labor, from excessive alimen-

tation, or spirit, or tea and coffee drinking, with the blood all crowding up into his head. We apply the well-wrung rubbing wet sheet one, two, or three times, to his surface, according as he may need, and he at once perceives a most wonderful change for the better. Or a man feels of a morning dull and stupid, with his muscles sore; he has the rubbing wet sheet, the plunge, shower, or douche, and instantly his troubles vanish. Or he may have a lumbar abscess, which has run him down so low that when he wakes in the morning he finds he cannot walk. Two or three gallons of cold water are poured over him, upon which he walks readily. Now these effects of water, remarkable as they are, arise simply from its excitant or electrical power.

7. By its Temperature. — In acute disease, in all fevers and inflammations, of whatever name or grade, the great power of water to regulate the temperature of the body is one of the most striking of all the phenomena cognizable by man. By the use of cold water we can always vary the heat of the body and the velocity of the heart's action to any desirable extent.

8. By Purifying the Blood. — Water accomplishes one thing which no drug, no other substance in nature can. *It purifies the blood.* It does this because it penetrates every lane and alley of the system, however minute. No capillary is so delicate that it does not penetrate its smallest possible part. It purifies the blood, because as long as the vital principle lasts, the tendency of nature is to preserve the vital fluid in a healthy state; and penetrating every tissue of the body as water does, it assists nature in the purifying process as no other substance can.

9. By Augmenting the Vital Force. — No fact in science is better established than that water possesses the power of actually increasing the amount of vitality in the system. This is, in fact, the prime effect of water. It aids the system in throwing off disease in the same way that increasing a merchant's capital aids him in throwing off debt.

The foregoing propositions are submitted as elucidating some of the leading principles concerned in the action of water upon the living body. I do not claim, however, that the whole of the philosophy of the effects of water is yet understood by any one. Doubtless those who know most about it have yet much to learn. ~

Rules for Using Water.

The Time of Day. — In general, the more powerful applications should be made in the early part of the day. At this time the calorific powers and the circulation are more vigorous, and, consequently, the body more able to resist powerful applications of whatever kind.

The Meals. — Ordinarily, no powerful bath should be taken within

three to four hours after a meal. A full stomach and cold water do not at all agree. But in certain diseased conditions, as feverishness, inflammation, colic, cramp in the stomach, cholera morbus, and other sudden attacks, water appliances are to be commenced without reference to hours or meals. The symptoms then are our only guide.

The Lighter Baths.—If there is doubt as to which application to make, the well-wrung rubbing wet sheet, the tepid shallow bath, or a warm bath should first be taken.

Reaction. — Within a reasonable time after a bath, the body in all its parts should become naturally warm. If the feet and hands remain cold, and the nails and lips blue, the bath has, to say the least, done no good. In some cases of fevers and other inflammatory diseases, it is better to keep the body chilly than to allow it to become too warm.

Ulceration. — If any part of the body, as the extremities, lungs, bowels, etc., is undergoing any considerable ulceration, very cold baths are inadmissible.

Nervousness. — With some persons who are highly nervous, and particularly with nervous females, much cold bathing, although it appears to agree well, and to be the best for a time, is in the end harmful, rendering the nervousness and general debility worse.

Exercise. — For the douche, plunge, cold sitz, and foot baths, and all others that abstract a large amount of caloric from the system, the body should be fully warm, and the circulation somewhat accelerated by exercise. Exercise should also be taken AFTER the bath, until the heat and circulation are fully restored. But if exercise is impracticable either before or after the bath, friction should be made to take its place.

Increased Heat. — Elevation of temperature constitutes no objection to bathing, provided the body is not excessively fatigued. The reason why overheated persons sometimes lose their lives by plunging into or drinking largely of cold water, is, that the vital force has been too much exhausted. Mere heat is an advantage.

Perspiration. — Neither does this constitute an objection to bathing or water-drinking, if the foregoing rules are observed.

The Air. — Bathing in the open air is always preferable to in-doors, provided the extremes of heat and cold are avoided.

The Head. — It is well always to wet the head with cold water, both before and after a bath. Douches and the shower should never be taken on this part. Simple pouring or affusion is the only mechanical force of water that should be allowed on the head.

Pregnancy. — This, as abundant experience proves, forms no objection to bathing, or any form of properly regulated water treat

ment. Cold bathing and water-drinking are of the greatest service during this period.

The Season. — If the lungs are not extensively diseased, and if there is no considerable ulceration going on in any part of the system, the cool and cold seasons are preferable for a course of bathing. With right management, a patient gains two or three times as much in a given time during the cold months as he does in the hot.

Days of Rest. — One day in seven water-treatment should be discontinued, with the exception of a simple ablution in the morning. Six days' treatment in the week is worth more than seven, because it is a law of nature that, if a remedy is continued steadily and without change, it loses much of its good effect. This is as true of water as of any other agent. Those who do wisely will omit the treatment on Sunday, whatever their religious convictions may be.

Internal Use of Water. — The same general rules apply here as in the external applications. *Thirst* should for the most part be gratified whenever it is experienced. As a rule, the less water drunk at meals the better. For the *tonic* effect, it is to be taken while the stomach is empty, and it is better that exercise should accompany it. From six to twelve tumblers per diem is a fair allowance for average patients.

Quality of Water. — For all remedial as well as hygienic purposes water should be as pure and soft as can be obtained. With proper care and ingenuity in the construction of cisterns, filters, etc., this desirable end can be everywhere accomplished. Lead, and lead pipes, should be avoided, except where the water runs freely and constantly.

The Sweating Process. — Formerly it was much in vogue to sweat patients in the blanket pack, but latterly the practice has quite gone into disrepute. For several years of the latter part of Priessnitz's career he was very averse to using the process. It was a remark of his, that the cures by sweating were not permanent.

Wet Bandages, Compresses, etc.

THESE, as we have already seen under the head of wounds and injuries, are of great value in water treatment. They are used of any desirable size, upon any part of the body, and produce different effects accordingly as they are used. *Cooling* wet compresses are such as are changed or rewet frequently, and for the most are left uncovered. The *warming* or *stimulating* are covered and left upon the part until it becomes as warm or warmer than natural. *Warm* fomentations are useful in certain cases, but the *hot* should, as a rule, be discarded.

The *wet girdle* is one of the most useful of all medical appliances. Two and a half or three yards of good toweling, with tapes arranged at one end, the corners of which have been turned over and sewed so

as to form a point, forms a good girdle. It should pass usually three times about the body, one-half having been wet. This brings two thicknesses of wet on the abdomen and one upon the back. At Graefenberg, this application was worn by every patient, and, as a rule, all of the time. It is useful in a great variety of ailments, both acute and chronic. The same *form* of application is also useful for the arms, legs, etc., the tapes being used in preference to pins.

The *wet jacket*, or *chest wrapper*, is also a valuable resort in diseases of the chest. Oiled silk and other similar articles, as I have elsewhere observed, are not to be used upon these local applications.

The following is the substance of Dr. Shew's description of hydro-pathic appliances.

The Wet-Sheet Pack.

IN this process a coarse linen or cotton sheet is used, long enough to reach from the patient's head to the soles of his feet, and about two yards in width. The bed is stripped of all its covering, one or two pillows only being left for the head. One or two comforters are then spread upon it, and over these the same number of woollen blankets, which are less injured by wet than cotton comfortables. The sheet having been pretty well wrung out of cold water,—always pure and soft, if such can be had,—is then spread out smoothly upon the blanket. The patient being undressed, lays himself upon the sheet, and, his arms being held up, an assistant laps one side of it over the body and lower limbs; when, the arms being dropped at the side, the other part of the sheet is, in like manner, lapped over. The blankets are then, one by one, brought over the person in the same way, and tucked under from head to foot. Comfortables may be added, if necessary.

It is always best to place a wet towel, covered with a dry one, on the patient's head while he is packed. If too much chill is not produced, the dry one may be left off.

This is the ordinary way of taking a pack in *chronic* disease.

The wet sheet is one of the most soothing and agreeable of all the water appliances. Hence it is that it is so often misused. It is so delightful, and tends so much to produce slumber, that the patient never feels ready to get out of it. But this slumber,—so profound and sweet as it often is,—he should remember, *may* be only an apoplectic stupor, which leaves him with a swimming head, attended with faintness, perhaps, and ending in a severe headache; giving him, in short, a congestion of the brain. All this happens in consequence of robbing the skin too long of the air it should breathe.

There has been a notion at some of the establishments that the wet sheet is to be used for sweating; and to this end, the patient has been literally stewed hour after hour, in some cases, even four, five, and six hours in succession, with the view of sweating him. All such practice is hurtful. If the patient gets better under it, it is in

consequence of the good effects of water used in other ways, coupled with the ever-important adjuncts, air, exercise and diet. In later times, Priessnitz never sweat patients at all, much less in wet sheets. If a man must sweat, leave off the wet sheet assuredly, as that only hinders the operation. Use the blanket pack or the vapor bath.

How Long shall the Pack Continue? — Here, too, there has been, and still is, much error in hydropathic practice. “Stay in the pack till you get warm,” has been the old doctrine. But some get warm at first, and afterward get cold; — so at least they feel. What is to be done?

One of Priessnitz’s improvements was to give short packs. “Remain enveloped for fifteen or twenty minutes only,” he said. “If you are not able to bear the pack in that way, take the rubbing wet sheet and the lighter processes until you are.” In some cases he gave two or three of these short packs in succession, the patient rising between each to take an airing, a rubbing wet sheet, or other bath, and then returning to the pack.

Thus far the wet sheet has been spoken of as used in *chronic* diseases. In acute attacks it is managed differently, according to the case. If the object be to abstract caloric from the body, we cover the sheet but little, — with a single dry sheet, or a blanket or two, or, perhaps, with none of these.

We know that if we keep a wet towel about a keg of water on a hot day, the water will be made cooler by evaporation. In the same way, when a patient is hot and feverish, we keep one, or, still better, two wet sheets around him, without other covering, and thus bring down the heat and circulation to any desirable degree. We sprinkle water upon the sheets, or rewet them as often as is necessary, — in some extreme cases of fever continuing them a whole week or more. Experience teaches that the continuous application of the wet linen is, in such cases, a most serviceable application, and one that tends most powerfully to induce in the dermoid structure its natural and healthful state.

The Wet Sheet Acts by Absorption. — It draws morbid matter *out of the body*, as any one may see who applies the sheet for a short time, and then washes it. Observe, too, what an odor comes from the sheet when a diseased patient has been packed. At the same time, it absorbs the pure water into its finest tissues on a large scale, thus supplying that fluid which of all substances the system, under such circumstances, most needs. This moist warmth of the sheet also acts as a most soothing poultice.

The Wet Dress.

A MODIFICATION of the wet sheet, and in some respects an improvement, is the “wet dress,” so called.

A coarse linen or cotton dress is made with large arms, so that one

may take the application without help. The dress being wet and applied, the patient lays himself upon blankets, in which he wraps himself just sufficiently to become comfortable. Or, he may have dry flannel dresses to put on over the wet one, and then lie in a common bed. In this application, the air is not excluded from the surface to anything like the same extent as in the common tight pack. Hence, a patient may remain in it a half, or the whole of the night, if he chooses, — being careful to become neither too warm nor too cold. Rewetting once or twice in the night will be of service. Often in a single night a bad cold may be thrown off in this simple way.

The Half Pack.

MANY patients have so little reactive energy, that while they can bear a half pack, so called, the entire sheet would abstract so much caloric from the body as to injure them. In such cases, the sheet is to be applied so as to extend only from the arm-pit, or at most, from the neck to the hips, leaving the lower extremities, as it were, in the dry pack. Sometimes the sheet is allowed to extend to the ankles, not including the feet. Packing the trunk of the body in wet towels acts upon the same principle as the partial or half pack, and is, in many cases, a valuable preliminary measure. It is well to take these preparatory steps when a patient who has suffered long from chronic disease is beginning with the envelopment.

The Folded Wet Sheet.

IN domestic practice, a modification of the wet sheet may be had by folding four-double a common coarse sheet, for enclosing the trunk from the armpits down. Two thicknesses of this are wet in cold water to come next the body.

This is a valuable application in a host of ailments, as pleurisy, inflammation of the lungs, inflammation of the bowels, colic, cholera, cholera morbus, rheumatism, painful menstruation, after-pains, etc. This remedy, which can be applied in five minutes, will often soothe a patient quietly to sleep, whose lot, without it, would be a night of agony. One advantage of this application is, that if a patient is too weak to rise, the sheet may be opened in front, so that fresh water may, when needed, be sprinkled upon it, and wet towels may be added under it upon the abdomen, if necessary.

In all the methods of applying the wet sheet, there can be no possible objection to using warm bricks, bottles, etc., for the feet when cold.

Bath after the Pack. — It is the practice generally to take some form of the bath after the pack. If the patient is too feeble to rise,

an ablution is performed while he is in bed. In other cases, a wet-sheet rubbing, shallow, plunge, towel, or other bath, is resorted to, but not strictly of necessity. It is better however, as a rule, to make the process a compound one, that is to take some form of bath after the pack. This should also be followed by exercise in the open air, if it can possibly be taken. A pack, followed by a faithful turn at work, or by exercise in the open air, is always worth much more than when followed by rest within doors.

The Rubbing Wet Sheet.

THE rubbing wet sheet, too little appreciated, and too seldom used, is one of the most valuable of all the hydropathic resources. There is probably no other single application of water, in all the multiform modes of hydropathic medication, that can be made, on the whole, as useful as this. It is a tonic, a stimulant, a sedative, an antispasmodic, a derivative, or a febrifuge, according to the circumstances under which it is applied.

We take a coarse linen sheet, — although cotton answers a very good purpose, — large enough to throw around the body like an Indian's blanket. It is wrung more or less, according to the demands of the case. Thereupon, it is thrown quickly around the patient's body, who, if strong enough, is in the standing posture; and then both patient and assistant set vigorously to work, rubbing *over* the sheet, not *with* it, as some do, three, four, or more minutes, until the surface becomes thoroughly warm (Fig. 188).

If there is fever, less friction is required. After the *wet* sheet, comes a *dry* one, to be used in the same manner. Those who have sufficient reactive energy, — and most have, — may dry the body simply by fanning it with the dry sheet, the windows at the same time being open. This sort of air-bath exerts a highly pleasurable effect upon the skin. Instead of giving one a cold, it helps greatly to ward it off. This method of drying the body was one of Priessnitz's later improvements.

The rubbing wet sheet, it should be remembered, is not a *single* application, capable of producing only one effect. It is used in *three* different gradations, and to produce very different results. It is well wrung, or only moderately wrung, or left quite wet and dripping. If a person is fatigued, or has a low degree of reactive energy, the first form is the one to adopt; if there is not much fatigue, and good reactive energy, the second; and if the patient is feverish, and the



FIG. 188.

object is to abstract heat simply, we use the sheet quite wet and dripping; and we repeat it as many times in succession as the case may need. One great advantage is, that we give it before or after a wet pack, when no bath is at hand; we also give it in connection with any other bath we may choose.

See how admirable a remedy the rubbing wet sheet is, when properly understood! A patient, — a child, perhaps, — is so feeble in the reactive power, that almost any form of bath we can give it sends the blood from the surface, making the lips and nails pale or blue, and the extremities cold, showing congestion of the internal organs. When a bath produces such effects, it is very apt, to say the least, to do more harm than good. But we can apply the rubbing wet sheet in such a way as to cause none of these ill effects; besides, it may be repeated many times in the day, so as to give the patient the advantage of a strong treatment; for a *light* treatment, which can be easily borne, is made a *strong* one by the frequency of its repetition.

A wet sheet, well wrung, holds perhaps a pint of water; or, at most, a quart. Now, it must appear plain, that a pint or quart of cold water, spread over so large a surface as the whole skin, must become very easily warmed by the body's heat. Besides, if there is *great* delicacy of constitution, we may wring the sheet out of water at seventy, eighty, or even ninety degrees, gradually lowering it as the patient can bear it.

The *domestic availability* of this application is also to be spoken of. In every dwelling, however humble, there is the coarse sheet, and the bucket of water. How useful, therefore, as a resort, in home practice!

The rubbing wet sheet appears a trifling application, — one which is not capable of producing any great result. But when we remember the myriads of nerves of animal life, spread over the skin, and derived from the brain and spinal cord, it need not surprise us that its application should so invigorate the body, take off bodily and mental depression, remove languor and fatigue, expel flatus from the bowels, remove thirst, give appetite, and cause a feeling of calmness and relief which can be appreciated only by those who experience it. A minister, for example, preaches three times on a Sunday, and gets his brain so excited that he cannot sleep. A cold bath would be too powerful, and opiates would only act as stimulants, making the matter worse. Two or three successful applications of the rubbing wet sheet, with powerful friction, bring the blood so much to the surface, that his brain becomes relieved, and he very soon falls into a sound and refreshing sleep. So, too, when a man has been long wet and drenched on a rainy day, and comes home, with the surface and extremities cold, and the blood pressing hard upon the brain and other internal organs, — the well-wrung rubbing sheet is applied, with plentiful friction, and at once the oppressed organs are set free.

In using the rubbing wet sheet, as in all other forms of general

bath, it is well to wash the hands and face in cold water, both before and after it. There is no need of throwing it over the head, as some have thought it necessary to do. A patient needs to breathe freely when he takes a bath.

This application is not always the most pleasant one. It does, in fact, require a good degree of moral courage to enable one to endure the first shock. The sensations produced by it are worse, if possible, than those from a plunge into cold water; I mean the first touch of the sheet to the body. Nervous ladies sometimes tell us they cannot take the rubbing wet sheet, when, at the same time, they take the cold plunge, which is far more powerful, and perhaps too powerful for their case. This unpleasant feeling does no harm, for it vanishes in a moment or two after the sheet touches the body.

The Douche Bath.

THIS is the most powerful, but not the most useful of all the hydropathic appliances. A common douche consists of a stream of water from one to two inches in diameter, with a fall of five to ten feet. But douches may be arranged of any desirable size and height. (Fig. 189.)

This remedy is useful in paralysis, stiff joints, gout, rheumatism, tumors, and old swellings of various kinds. Those who have weak lungs, stomach, or other abdominal organs, should not resort to the douche without the best of medical advice.

The Shower Bath.

THIS is also one of the more powerful of the hydropathic appliances, and needs judgment in its use. It consists in fact, of a vast number of small streams or douches, and hence is a powerful refrigerant, as well as excitant, to the system. It is useful to commence this bath, for a time at first, only upon the limbs. It is used by all gymnasts.

The Cataract Bath.

THIS also is one of the more powerful of the hydropathic processes, and is to be classed with the two preceding baths. Like them it may be said to be stimulant, tonic, and alterative, while it is also highly sedative as far as animal heat is concerned.

The Hose Bath.

THROUGH the modern improvements in India-rubber, gutta-percha, leather, etc., it is easy, whenever there is a small fall or head of water, to arrange what is called a hose-bath. It is in principle a

douche, with the additional advantage that it can be made to act upon any part of the body, and from whatever direction we choose. Rightly applied, the hose bath is a valuable remedy. (Fig. 190.)



FIG. 189.

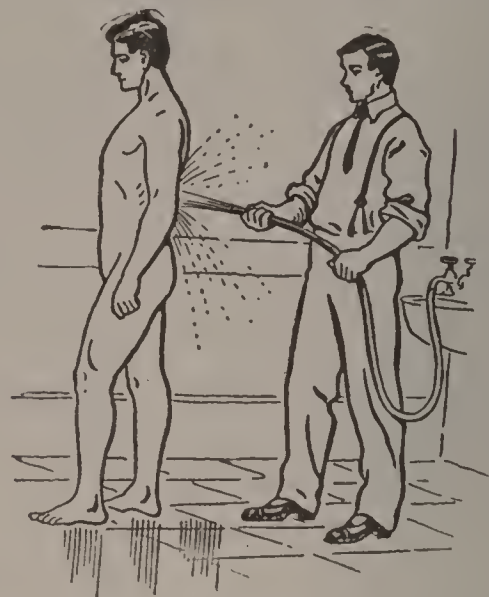


FIG. 190.

The Pail Douche.

THE process which passes under this name is taken thus: The patient seats himself in an empty, shallow, or other bathing-tub, and crosses his hands over his chest. As many pails of water as are ordered are then dashed over him suddenly, one after another, before and behind alternately, — not poured, but thrown with some force, by first a backward and then a forward motion of the pail.

A better method of using it is, for the patient to stand in an empty bathing-tub, while an assistant takes two pails of water, one ten degrees warmer than the other, and empties the warmer half upon the chest and half upon the back, and then bestows the colder pailful in the same manner; and then dries with friction.

The Wave or Sluice Bath.

THIS is taken at the sluice-way of an undershot mill-wheel, or in any similar place. The patient takes hold of a rope, or something by which he can maintain his position, and then, lying down, subjects his body to the action of the water. This is, on the whole, a pleasant and agreeable bath, and in its effects somewhat resembles the douche, being, however, milder and safer.

The Half Bath.

THIS bath may be used as one of the mildest of the water-cure processes, or as one of the most powerful. An ordinary bathing-tub is a very good apparatus for the purpose. A good-sized washing-tub will answer very well, if there is nothing else at hand. The water should generally be quite shallow in this bath, — from three to six

inches. Priessnitz's half-baths were made of wood, four or five feet long, about two and a half feet wide, and twenty inches deep. This simple contrivance is one of his most powerful remedial means,—that by which some of his highest triumphs are achieved.

The water is generally used of moderate temperature, at sixty to seventy degrees Fahr., and, when long continued, is changed, as it becomes warm from the heat of the body.

This bath may be used,

First, as a means of cooling the mass of the circulation in the hot stages of fever, and in inflammatory attacks of every kind.

Secondly, as a revulsive, or means of drawing blood in congestions or inflammations of the nobler organs, the brain, lungs, stomach, liver, etc.

Thirdly, as a means of resuscitation in the shock of serious accidents, sun-stroke, and before, during, or after apoplectic and other fits. In drunkenness and delirium tremens, the half bath is a sovereign remedy.

Fourthly, as a middle means, and preparatory to the general bath in weak constitutions.

In the latter of these indications, the bath is generally used but for a few minutes after the wet sheet, or at other times, as may be desired. In the former, much practical knowledge is necessary in order to proceed always with safety, and to obtain the best results. Thus, six, or even nine hours may be required, with the greatest perseverance, the patient being thoroughly rubbed over the whole surface, and this to be kept up constantly by relays of assistants, the patient's head and shoulders, meanwhile, being supported.

The Plunge Bath.

IN sea, river, and lake, as well as by artificial means, and as a matter of luxury, religious observance, purification, and the prevention and cure of disease, the plunge bath has, in all periods of time, and in all parts of the world, been a favorite resort. So efficacious, indeed, has this simple means proved in healing the sick, that not a little superstition has been mingled with it. Springs and wells have often been supposed to possess some mysterious power, and for that reason has been named after some patron saint. In this respect, the world has loved mystery and marvellousness rather than the pure and simple truth.

In hydropathic practice, the plunge is much used; but many patients are not able to bear it. Those who are not sufficiently strong for it at first, should practise the rubbing wet sheet, the half-bath, drinking, exercise, etc., until the plunge can be borne. It is a favorite remedy at all the establishments, to be taken directly on coming from the wet-sheet pack.

The Head Bath.

FROM time immemorial, cooling applications to the head have been much depended upon in that violent and dangerous disease, inflammation of the brain. All other known means failing, certain obstinate affections of the head have been known to give way to affusion of cold water upon the part. In headache, drunkenness, delirium tremens, the delirium of fever, epilepsy, rheumatism of the head, diseases of the eye, earache, deafness, loss of smell and taste, and in nose-bleed, this highly energetic remedy is brought to bear. In taking it, the patient lies down, placing the back of his head in a shallow dish, filled only an inch or two with water. (Fig. 191.)



FIG. 192.



FIG. 192.

The Leg Bath.

THIS is useful in cases of ulcers, swellings, eruptions, gout, rheumatism, sprains, wounds, etc., of the leg or thigh. The relief and strength obtained, often by a single application of this remedy, is truly wonderful. A variety of apparatus may be contrived for administering the leg bath. A common wooden tub, contrived for the purpose, like that represented in Fig. 192, answers a good purpose. In such a vessel, he covers the inflamed limb introduced, and cools the blood flowing to it.

The Sitz-Bath.

CONVENIENT tubs, wooden or metallic, are constructed for this bath, but an ordinary wash-tub answers very well. The vessel should be large enough to permit the motion of the arms in rubbing the abdomen, sides, and hips, first with one hand, and then with the other. Water enough should generally be used to pretty nearly cover the belly. The more movement and friction while in this bath the better. It is more conveniently administered when the tub is elevated two or three inches from the floor. Some undress the patient completely, and place a blanket or sheet over the upper part of the body; but

oftener only those parts are uncovered which are to be exposed to the water. (Fig. 193.)

In a variety of ailments, this bath is highly valuable. It may be made one of the most powerful of all the hydropathic modes. Like all other powerful applications, it should be taken only when digestion is nearly or quite completed.

As a tonic to the stomach, liver, bowels, womb, spine, etc., this bath is highly useful. In constipation and other irregularities it is famous. Those of sedentary habits will find its use of rare service. For the tonic effect, ten, twenty, twenty-five, or thirty minutes. If continued for some length of time the water is to be changed once or more, as it would otherwise become too warm.



FIG. 193.



FIG. 194.

The Wash-Tub Bath.

UNDER a great variety of circumstances, the wash-tub bath is an invaluable remedy. For example, a patient is feverish; by setting him in a wash-tub half filled with water, and at the same time, if we choose, putting his feet in a pail of water, cold or warm, according to the case, we may give him any desirable amount of cooling. We cannot, indeed, too highly prize this simple contrivance for using water, — a means which every family possesses. (Fig. 194.)

The water, as a general rule, should be tepid, ranging from 72° to 90° , and may be prolonged from two to fifteen minutes, according to the strength of the patient. It should never be carried to the extent of producing blueness of the nails. The patient should be dried with towels, or the dry rubbing sheet.

This bath is useful in the treatment of eruptive fevers, bilious remittents, the hot stage of intermittents, and in hectic and typhoid fevers. It is often used after the wet sheet pack, in chronic affections, and may then have a little cooler temperature, or else be followed by pouring a pail of cooler water over the shoulders to tone up the skin.

The Affusion.

THE patient stands in a wash-tub, bathing-tub, or other convenient place, when, by means of a pail, pitcher, or basin, the assistant pours water upon the head, neck, etc., either upon the whole of the body or only upon a part. The water is used in quantity and temperature according to the necessities of the case. The affusion is one of the best of hydropathic modes.

Fifty years ago Dr. Currie, of England, performed great cures in fever by the affusion, sometimes tepid, at others cold, according to the strength and heat of the patient. If there was great heat, the water was used cold; if not, the reverse. In a variety of febrile diseases, such as typhus fever, scarlet fever, small-pox, measles, tetanus, convulsions, etc., he used this remedy with remarkable success.

Towel and Sponge Bath.

WITH one or two coarse towels and a quart or two of water we may take a very good bath almost anywhere, even in a carpeted room, at a hotel, or wherever we may be, without spilling a drop of the water. After a person becomes accustomed to this form of ablution, none but the most indolent will be willing to do without it, unless they can have some other form of bath. A daily towel ablution, thoroughly performed, is an excellent prevention against colds, helps the appetite and digestion, and is a good means of preventing constipation.

Some are in the habit of sitting in a half-bath or a sitz-tub, and with a large sponge making the water pass freely upon the head, neck, shoulders, and other parts of the body. At the same time the bather may pour water from a cup, basin or pitcher, upon the head, neck, etc. This is a mild affusion, and stronger in effect than the towel-bath.

Wash-Down.

THE process to which this name is given by Dr. Edward Johnson is practised as follows: "The patient stands in an empty sitting- or wash-tub, beside which stands a pail of cold water with two coarse towels soaking in it. The bath attendant, taking his place behind the patient, lifts one of the towels all loaded with water, and lays it quickly on the patient's head. The patient immediately seizes it, removes it from his head, and rubs himself rapidly with it,—his face, his throat, shoulders, arms, chest, stomach, bowels, thighs and legs. Having gone rapidly over the whole body once, he drops his towel into the pail again, which the bath-man presses down to the bottom of the water, then lifts it out, and places it on his head again. As

before, the patient seizes it, and goes all over the same ground once more, and then drops it into the water again, when the bath-man again lifts it and places it on the head to be a third time removed by the patient, and applied as before, rapidly, actively and energetically, all over his body in front. The bath-man is industriously occupied all the time behind in the same manner, from the back of the neck to the back of the legs, wetting his own towel as often as he wets that used by the patient, viz., three times. This is called a wash-down of three towels. The patient is then dried in a dry sheet. It is a more powerful bath than the common towel-bath, but not in all respects so convenient to take.

The Cold Foot-Bath.

ONE of the first things people who are troubled with cold feet do is to plunge them into cold water. Nor is the assertion, put forth in some of the hydropathic works, that the cold foot-bath was prescribed by Priessnitz for the same purpose that the faculty order warm ones, correct. When the feet are already cold, neither Priessnitz nor any one in his sober reason would prescribe cold water, which can only make the parts colder. To obtain the good effect of the cold foot-bath, so far as the feet are concerned, they should be warm whenever it is taken. For a tendency to coldness of the feet, — a very common symptom in these days of so-called luxury and refinement, and one that indicates a state of things in the system incomparably more to be dreaded than the mere coldness of the feet, — this is *the* remedy. It may be taken at any convenient time; just before the morning walk is a very suitable occasion, the parts being usually warm early in the day.

At other times, if cold, they should, if at all practicable, be warmed by exercise and friction before subjecting them to the action of cold water. But in cases of old age, great debility, etc., the warm foot-bath and other warm applications may be resorted to before the cold. Thus with cold, exercise and friction, accustoming the feet daily and frequently to cold water, will beget in them a habit of remaining warm. In a great variety of ailments, such as toothache, rush of blood to the head, headache, earache, inflammation of the eyes, gout, rheumatism, hemorrhage, etc., the cold foot-bath is a valuable remedy. It is ordered deep or shallow, and of duration according to the nature of the case.

Wading Foot-Baths.

I HAVE often directed patients to wade in water in some convenient place as a means of hardening the system and of giving tone to the nerves. Delicate ladies who were not able, as they supposed, to endure cold water applied to the feet, have by degrees, wetting the feet but little at first, become so accustomed to the coldest water that

in a few weeks they could bear as much as any one would desire. Caution and perseverance should be the rule.

It is partly by sympathy and partly by the abstraction of heat, that foot-baths and wetting the feet act in so beneficial or deleterious a manner as we know them to do. The principle of sympathy is an old one in the medical art, but none the worse for that.

The Warm Foot-Bath.

I AM aware that some who consider themselves *genuinely hydro-pathic* object to the use of this remedy. Having truth for my object, however, I care not for such objections so far as I myself am concerned, and without stopping here to argue the question, I simply remark that *warmth* under some circumstances is as natural an application for the living body as *cold* under other circumstances. I have already remarked, under the head of the cold foot-bath, that putting the feet into warm water is often a good preparatory process to that bath. It is good also, now and then, for soothing divers aches and pains, and also for warming the feet of old and weakly people, who cannot exercise sufficiently. Soaking the feet in hot water for twenty minutes, and taking five or six drops of spirits of Camphor in a teaspoonful of sugar will often break up a cold, if taken in season.

The Nose-Bath.

IN a variety of nasal ailments, catarrh, colds in the head, inflammation and ulceration of the nasal passages, nose-bleed, etc., the *nose-bath* is a salutary remedy. The water is used either tepid or cold, according to the case. It should be drawn back, if possible, so that it is ejected by the mouth. Those who have injured the nasal cavities by much snuff-taking will find advantage from sniffing water freely into the nostrils. If one is determined to leave off snuff, as every one addicted to it, if he regards either health or bodily comfort, ought, he will find it useful often to take cold water instead of the abominable weed.

The Eye and Ear Bath.

VARIOUS contrivances may be brought to bear in applying water to the eye and ear. Light, ascending douches and showers are useful for various diseases of the parts. There should not be much force used in this way. Immersing them also in water is often useful. The water should not, in general, be very cold, tepid or warm being often the best.

Mouth, or Oral Bath.

FOR inflammation of the gums, mouth, throat, and palate, in slimy secretions from the throat and stomach, in toothache, catarrh, colds, and chronic hoarseness, garglings and baths for the mouth are of great service. Pauley, a merchant of Vienna, has been thought singular for his zeal in recommending this bath. Clergymen and others who suffer hoarseness by much speaking will find that holding very cold water in the mouth until it begins to grow warm, and then ejecting it, and by frequently repeating the process, much benefit will be obtained. Coughs and tightness of the chest may often be essentially relieved by this bath. In mucous secretions from the throat and stomach, by ejecting the water a number of times, it will surprise those who have not witnessed the remedy to see the amount of slimy secretion thrown off.

DOMESTIC MANAGEMENT OF THE SICK-ROOM

By a careful and detailed study of which, an intelligent person
can discharge the full duties of an
experienced nurse.

DOMESTIC MANAGEMENT OF THE SICK ROOM.

Choice of the Sick-Room, etc.

Sleeping Apartment.—In every case of disease, however slight its nature, the sleeping apartment of the sick should be airy and well ventilated; but, when Providence visits any member of a family with disease of a serious and protracted description, all other considerations giving way to the necessity of the case, an apartment should be chosen and arranged in a special manner for the reception of the invalid. It should be one calculated to administer to his temporary comfort, as well as to aid his recovery. It is not time, when the alarm is sounded and the danger is already urgent, to think of such arrangements; forethought must be put in requisition; every want anticipated; and whatever is likely to be required should not only be provided, but so arranged that it can be instantly found when it is needed.

The sick-room should be large, lofty, and, if possible, with a northern aspect, in order to avoid the heat of the mid-day, or the afternoon sun; the windows should be capable of being opened by drawing down the uppermost sash. If possible, choose a room with an open fireplace or a ventilator opening into the chimney in the upper part of the room. No article of unnecessary furniture should be permitted to remain in the room; and that which is left in it should be of a description fitted to administer to the convenience of the invalid.

Two tables are sufficient. One of them may be small, to stand near the bed, for the immediate use of the patient: namely, to hold his jug of barley-water, or toast-water, or other beverage;—a small tea-pot, or what is preferable, a half-covered cup with a spout, to enable fluids to be administered without raising the sufferer in bed;—his medicines for the day;—and any other thing which he may frequently require.

The other table should be large, for the accommodation of medicines not in immediate use, and also for spare glasses, jugs, cups, spoons, both large and small, and other necessary articles. This

table should have one drawer, at least, which ought to be furnished with the following articles: broad and narrow tape; two or three half-worn ribbons; a bundle of old, soft linen; a sponge; a few ounces of lint; scissors, large and small; a bone spatula for spreading ointment; a couple of rolls of muslin, and the same quantity of flannel bandage two inches broad; a pin-cushion well supplied with pins; needles and thread; and about half a yard of simple adhesive plaster.

A Sofa or Reclining Chair. — A sofa, if the apartment be sufficiently large to admit of it, is a very important piece of furniture in the sick-room; the erect or the sitting posture being injurious in many diseases; and, when the sick-bed requires to be made, a sofa affords the means of removing the patient from the bed with as little inconvenience to him as possible.

If there is not a space for a sofa, there should be an invalid or reclining chair; and, when circumstances will permit, it should be of that kind which is susceptible of a variety of changes, so as to vary, at pleasure, the position of the patient. There should not be more than two other chairs in the room. If there is a looking-glass in the apartment, in a situation which admits of the patient seeing himself in it as he lies in bed, its place should be changed, or it should be altogether removed from the room. A chest of drawers is essential; but none of the drawers should be appropriated for the reception of dirty linen, which ought never to be allowed to remain a moment in the sick-room. One drawer should be especially allotted for towels, of which an ample supply is, in every case, necessary. The washing-stand will require two additional basins; an additional water-bottle and a tumbler; and a large water-pitcher, under the table, always full of water.

No Cooking in Sick-room. — There should be no kettle, nor any implement of cooking, in the sick-room; even in winter, and when a fire is required. In general, a fire in the sick-room is only necessary for the comfort of the attendants. The lamp termed a *Night-nurse*, consisting of a water-bath placed over a lamp in a wire-worked cylinder; a small tin kettle which enters the top of the cylinder; and a covered earthenware vessel which fits into the water-bath, are useful for keeping fluids warm, and at the same time for preserving a light in the room, when an unshaded lamp or a candle would be hurtful.

In continued fevers, the sense of hearing is often so morbidly acute that ordinary sounds become causes of pain. In this case, if the floor of the sick-room be not wholly carpeted, every precaution to lessen the intensity of the sound should be taken. One of the most effectual is to have a couple or more pairs of large list shoes outside the door, into which the feet, even of the doctors, may be advantageously thrust, when their shoes make a creaking noise, or when a

visitor or nurse treads with a heavy foot. On the same account, when more than one nurse or attendant is required to be in the room at the same time, no conversation, although it may be carried on in a whisper, should be permitted. Whispering, indeed, is apt to excite delirium, and to augment it when it is already present.

Beds and Bedding.—Beds without curtains are those best adapted for the sick-room. In every case of disease, indeed, especially when it is attended by fever, the patient should be kept cool, and the most perfect freedom be given to the breathing; the hair mattress should be used, never a feather bed, and the pillows be firm and elastic. The coverlets, which are spread upon beds during the day, and often retained at night, are heavy, and calculated rather to increase than to subdue fever; consequently they should be wholly discarded from the sick-bed. Indeed, when the disease is fever, and when it is accompanied with great restlessness, owing to the evening exacerbation, if the bedroom be sufficiently large, two beds should be placed in it; or if two adjoining bedchambers can be obtained, a bed ought to be put in each, so that the patient can be moved from one bed to the other every morning and evening. This both aids sleep, and it also tends greatly to insure the personal cleanliness of the patient. The bedclothes of the bed from which the patient is moved, should, on his removal, be immediately turned down and fully exposed to the air; a precaution which will set aside the necessity of so frequent a change of linen as would be otherwise required. When there is only one bed, and when the disease is fever (unless the patient is too ill to permit his being moved), the sheets which have been used at night should be replaced by others in the morning, and hung up in the free air during the day, to be again used at night. But, when it can conveniently be done, in every case of continued fever, especially of an infectious kind, the sheets should be changed once in twenty-four hours; a practice which is likely to prevent the fumes of infection from being communicated to the blankets, or to any of the furniture of the room.

Ventilation is always of primary importance; and that period, happily, is gone by, in which air was carefully excluded from the chambers of the sick, even when they were suffering under febrile disease.

Ventilation is particularly demanded in those fevers in which miliary eruptions display themselves; under no circumstances is it so essential as in febrile diseases of an *infectious* kind. It may, however, be consolatory to those whose duty it is to attend such cases, to know that infection communicated through the air rarely extends above a few feet from the body of the patient; and even in the most malignant diseases, with the exception of confluent small-pox, and malignant scarlet fever of the worst kind, its influence does not exceed a few yards, if the room be well ventilated. On the contrary,

if ventilation be neglected, the power of infection becomes greatly augmented from its concentration in confined and quiescent air; it even settles upon the clothes of the attendants, and on the furniture of the room; and these imbibe it most readily when their texture is wool, fur, or cotton, or any loose or downy substance capable of receiving and readily retaining the air. Smooth and polished surfaces do not easily receive or retain infectious matter; consequently the nurses and attendants, in cases of infectious diseases, should have glazed gowns, and aprons of oiled silk.

In no infectious diseases are these rules more essentially necessary than in small-pox and scarlet fever. It is well known that, if the bedclothes of a patient laboring under either scarlet fever or small-pox be closely folded up, they will retain the infectious matter, and communicate the disease at a great distance of time; but the influence of free ventilation is so great, that medical practitioners who are attending small-pox patients, and who go from them into the open air, do not spread the disease. Indeed, all infection is weakened by dilution with air. The danger of infection is augmented, if, along with bad ventilation, the atmosphere of the room be moist from any cause.

It is further consolatory to know that the infectious matter, even of the most virulent description, is not poisonous to everyone who is placed within the sphere of its influence. A predisposition of the body to receive the infection must exist before it can be communicated; a condition which is augmented by fatigue and watching, defective nourishment, mental depression, or anything which can lower the vital powers. The necessity, therefore, of maintaining these powers by attention to rest, a sufficient quantity of good and generous diet, and cheerfulness of mind, need not be insisted upon.

In every case of infectious disease, the attendants, even in the best ventilated rooms, should stand on the windward, or on that side of the sick-bed from which the current of air comes; as, by neglect of this rule, and by standing in the current which has passed over the patient, the infectious exhalations are blown upon them in a direct stream from the body of the patient. The attendants should never lean over the sick, nor should they receive their breath. The health also of the nurses should always be supported by nutritious and generous diet; but not by brandy, nor any other ardent spirit.

The term *infection*, in its most extensive signification, implies some deleterious matter, originating from any source, and transmitted through the air, which is capable of causing diseases in the human body. When this matter is emanated from the diseased bodies of men, the term is frequently regarded as synonymous with *contagion*; but, in strictness of language, the latter refers only to the communication of disease by *contact*. Whatever may be the matter of infection, it may enter the body through the medium of the lungs, which is the most ready inlet, or by the saliva, or even through the surface, if the skin be abraded, or if any ulceration be present. The influ-

ence of infectious matter is evidently exerted on the nervous system, displaying itself by debility, inertness, dislike to motion, great susceptibility of cold, irritability and despondency of mind, and by the production of a disease similar to that of the person from whom the infectious matter has proceeded. The infection may be supposed to have taken effect, and to have produced the actual disease, when the person who has been exposed to its influence is attacked with giddiness, pain in the head, irregular heat and chills, nausea, and, if the infectious disease be small-pox, convulsions. These symptoms are sufficient to denote the necessity for immediate medical advice.

Temperature. — Next to ventilation nothing is of more importance than the regulation of the *temperature* of the sick-room, avoiding both extremes of elevation or of depression; but much depends on the nature of the disease.

The best general temperature of a sick-room is 60° (Fahr.); and it is preferable to regulate this rather by the thermometer than by the sensations of the patients or the attendants. Under some circumstances, however, the feelings of the patient, and his susceptibility of impressions upon the skin, should not be overlooked. Thus if the temperature be a little above that of summer, and the patient, nevertheless, feel chilly, it should be raised five or six degrees. This chilliness is very apt to be felt in a dyspeptic state of the habit, and more especially when it is accompanied with hypochondriasis. It differs from that more severe but transient coldness which accompanies intermittent fevers, and some other periodical affections; and it requires an elevated temperature of the air for its removal, whilst the cold stage of intermittent diseases is best relieved by the warm bath, either general or local.

So important is the regulation of temperature, especially in fevers, that it often does more good than any other remedial measure. I have seen patients laboring under high delirium in a close, ill-ventilated room become rapidly quite collected by merely lowering the heat of the apartment twelve or fifteen degrees.

In convalescence, as the air of the sick-chamber should be frequently renewed, the temperature in spring and autumn ought to be maintained as near as possible at 55° to 60° (Fahr.); and it should be very gradually lowered as the invalid acquires strength, so as to enable him to bear with impunity the varying temperature of these seasons in the open air. Even then, if the previous disease has been pulmonary, the air admitted to the lungs should be tempered by the use of the Respirator, or a muslin handkerchief tied around the mouth. When the invalid first ventures out of doors, nothing, indeed, is so essential, in a prophylactic point of view, as avoiding extremes and sudden transitions of temperature.

Cleanliness. — Although *cleanliness* in the sick-room is essential, yet it may be carried so far as to become an annoyance to the invalid,

and consequently to prove injurious. It is not requisite to sweep the room daily, nor to dust and arrange the furniture every morning, provided order be preserved in the room, and nothing but what is immediately necessary for the comfort and convenience of the invalid be permitted to remain in it. It is truly distressing to observe the confusion which prevails in some sick-rooms; everything being out of place, and to be searched for when it is wanted.

The period chosen for cleaning and arranging the sick-room should be the morning, as after a night's rest the patient is more able to bear the little noise and bustle which it always more or less occasions. The carpet should be sprinkled with moist tea-leaves, or newspaper torn in small pieces and wet, and lightly swept.

It is scarcely requisite to insist on the necessity of the utmost attention to the cleanliness of everything in the sick-room. The moment after any vessel or implement is used by the invalid, it should be removed from the apartment, and returned as soon as it is cleaned. Nothing in the form of a slop-basin or slop-pail is admissible; they only administer to the laziness of nurses.

The necessity of cleanliness in the vessels used for the food of invalids is strikingly illustrated in the bad effects arising from the neglect of it when an infant is brought up by hand. In such a case, if the feeding-bottle which is employed be not instantly cleansed after the meal has been given, the small portion of the pap or food which remains in the vessel becomes sour, and taints the whole of the fresh food mixed with it, causing colic and convulsions in the infant. The same risk of injury occurs in the sick-room, if the vessels used for administering food to the invalid be not instantly and well cleansed after every time they are used.

It is too common, also, to use one glass or cup for administering medicines, and to leave it unrinsed from time to time, — a custom which may prove as deleterious as a defect of cleanliness in vessels employed for food. Some medicines, when they are exposed to the air, rapidly undergo changes which alter their properties; and this alteration having been undergone by the small portion which is always left in the glass or cup, communicates the disposition to be decomposed to that which may be next poured into the cup. An active medicine may be thus rendered inert; or one which is mild in its operation may be so changed as to operate with hazardous energy. The same precaution, as to cleanliness, is also requisite as to the minim measure, when medicines are directed to be administered in a form which requires its employment.

Darkening the Sick-room. — It is a common error to imagine that a sick-room should always be either *partially or wholly darkened*. In some diseases, as, for example, fevers, when the eyes are acutely sensible to light, so that they remain half-closed, and the eyebrows are contracted, the greatest relief is experienced from darkening the room. When delirium is present, a certain degree of darkening is in

some instances serviceable; whilst in others, especially when the delirium is accompanied with visual illusions, nothing so readily dispels these, and consequently abates the delirium, as the admission of the full daylight into the sick-room. There is much difficulty, however, in determining which state of the apartment is likely to be most serviceable in any particular case. Observation of the effects of light and darkness, in the individual case, must be our guide.

These illusions of the sight are generally the result of former impressions, renewed at a moment when the brain is in such a disturbed condition as to set aside the exercise of judgment. In this condition of the brain, the renewed conceptions are not readily corrected, as in health, by impressions received from the external world; hence, they become more vivid in the mind of the invalid when the sick-room is darkened, and all visible objects are shut out. They are usually dispelled by new impressions on the organ of sense chiefly implicated; on which account, those which are connected with sight seldom occur during the day, when real objects are presented to the eye, unless the brain be so over-excited as to bring the conceptive faculty into intense exercise, sufficient to awaken those false perceptions which create a belief of the presence of individuals not only not present, but who have been long dead. This state of the mental organ is similar to that on which depend the spectral illusions of the insane, but differing from it in its transient nature. I have frequently witnessed the conversation with one of these spectral beings instantly terminated, and the whole illusion dispelled, on opening the window curtains of the room; whilst the invalid has thus expressed himself: "Bless me! I thought I was talking with Mr. —, just now; I must have been dreaming; for now I recollect he has been dead many years." A twilight obscurity in the sick-room is often more productive of these illusions than darkness.

Fumigation.

AFTER every contagious disease, like diphtheria, scarlet fever, etc., the room, furniture, bed, etc., are to be thoroughly disinfected, to prevent the development and spreading of the germs.

Sulphur fumes have been used for many years for this purpose, but this method is not secure, agreeable nor efficient. It no doubt kills many germs exposed any length of time to its fumes, but never destroys their spores. So much so-called fumigation, as usually practised, is useless, that it might as well not have been done, as it gives a false impression of security. Most virulent germs are capable of reproduction and dissemination years after their original occupation of a house. Old bedding and clothing, brought out months after the so-called fumigation, have caused the death of many a little one, and the dangerous sickness of others.

Sulphur and its allies have been found to be so altogether uncertain and untrustworthy that boards of health are no longer willing to endorse its usefulness.

The only reliable, practical measure against the life of contagious germs is the same as now used in case of surgical diseases. *Corrosive sublimate, carbolic acid, boiling water, steaming, and baking* are sure and safe remedies.

Of this number *corrosive sublimate* is easily the leader in efficiency. It is not the dangerous drug to use as commonly supposed, since the quantity necessary to kill cannot be collected in a room subjected to its use. Every piece of furniture and all woodwork, even the paper of the wall, can be safely washed in a solution of this drug, made by dissolving one tablet in two quarts of water, and fear need not be entertained, either, of its efficacy or its harmfulness. Doors, windows, and other woodwork should be thoroughly washed with it. Carpets should be first wet with it from a sprinkler, dried and beaten. The paper need not be removed, if only it can be wiped with this solution. Bedding should be steamed, bed-clothing boiled, and all articles not readily washed may be likewise steamed. A solution of *carbolic acid*, 1 part to 40 of water, is likewise efficient. The great danger of doing poor work in the matter of fumigation lies in the practice of carrying things out of the room during the illness, before fumigation has been commenced. The nurse or mother travelling from one room to another may carry in her clothing germs sufficient to infect a whole neighborhood. The attendants of such a case should wear some thin linen, cotton, cambric, or other washable dress, that may now and then be put into the boiler, and thus thoroughly cleansed.

The hair of patient and attendant should be thoroughly washed in the *corrosive* wash on leaving the room, before disinfection of same. Hands are to be scrubbed in soap and water, and then washed in *corrosive* solution on leaving the room, and finally the room is to be thoroughly aired.

If the work is done well and care has been exercised not to have contaminated other portions of the house except that occupied by the patient, all will be well. Frequently during the illness sheets wrung out of the *corrosive* solution are hung up on one side of the door to filter the air passing out of the room. It has also been found that the evaporation of some mild antiseptic in the room during the sickness not only modifies the virulence of the germ, but is actually beneficial in the treatment of these diseases. Of these drugs the following is an excellent combination, which may be evaporated in a tin dish-cover placed over a light, a stove, or other heated surface. It should be burned during the continuance of the disease.

Carbolic Acid,	.	.	.	.	.	.	.	.	1 oz.
Turpentine,	.	.	.	.	.	.	.	.	1 oz.
Oil of Eucalyptus,	.	.	.	.	.	.	.	.	1 oz.
Alcohol,	.	.	.	.	.	.	.	.	1 pint

Let the rate of evaporation be very slow, and, if much *carbolic acid* be used in case of children, see that the drug is not absorbed into the system to such extent as to cause black urine or a backache.

Sulphur Fumigation. — This mode of fumigating chambers after measles, scarlet fever, and diphtheria is perhaps the most common, and, while not an ideal method, it is very easy of application, and quite practical.

Buy two sulphur candles for every room to be fumigated, and, having lit them, shut up all windows and doors, and stuff all crevices in the doors with cotton batting. Allow the fumes to penetrate every closet and drawer for twenty-four hours. The room may then be occupied.

Nitric Acid Fumigation. — The efficiency of nitric acid in the form of gas, in arresting contagion, and in cleansing infected rooms, ships, and other places, is well established. To obtain the gas, pour one ounce of sulphuric acid upon two ounces of nitrate of potash in a large tea-cup, — the cup being placed in a basin containing hot water. The gas or vapor will be immediately disengaged.

This quantity will thoroughly cleanse a small apartment, but if used in a sick-room, should be placed at some distance from the patient. In a large room two cups will be required; and if a whole house is to be fumigated, let several be placed in various apartments, and the doors and windows be closed for half an hour.

Chloride of Zinc. — A solution of the chloride of zinc has great power in arresting contagion, and in cleansing infected places. A small quantity of it will, in a few minutes, cleanse the most offensive apartments.

Chloride of Lime. — This is one of the most powerful disinfecting or cleansing agents known. To prepare it for use, add four gallons of water to a pound of the chloride of lime; stir the mixture well, and after allowing it to settle for a short time, pour off the clear solution, and keep it in well-corked bottles.

Chloride of Soda. — This, in disinfecting power, is about equal to the chloride of lime. In order that it may retain its properties, it must be kept from the light, in a well-stopped glass bottle. When used, it must be mixed in the proportion of one ounce, or two large spoonfuls, to the pint of water. It is excellent for cleansing carbuncles, gangrenous sores, bad ulcers, ulcerated sore throat, and fetid discharges of every kind. A weak solution should be frequently applied.

Uses of Chlorides of Lime and Soda. — These articles almost instantly destroy every bad smell, and all effluvia arising from animal and vegetable decomposition, and entirely prevent their bad influence.

While infectious or contagious diseases prevail in large towns or cities, the rooms should be sprinkled, morning and evening, with some of one of these solutions. Some of it should be placed in the different rooms, in shallow dishes, — the small bed-rooms being particularly remembered.

It must be remembered that whatever can be boiled, like linen sheets, towels, etc., and whatever can be subjected to prolonged steaming, or the presence of boiling water, can be made absolutely clean and germ-free. No fear need be caused after such a disinfection.

In houses where there are typhoid and putrid fevers, and infectious complaints, it is highly proper to sprinkle the solution about the rooms, and occasionally upon the bed-linen; and the air of the room should be frequently renewed. A wineglassful added to the chamber-vessel or the bed-pan will remove all smell. The most frequently used disinfectants for the stools of typhoid patients is carbolic acid, in the strength of one teaspoonful to the pint of water; of this use half or third of the quantity for each stool.

Before sending the bed and other linen to the wash, let it be immersed, five or six minutes, in one of these solutions, diluted, as mere washing will not always remove the infection. But the linen should be immediately rinsed in pure water after the immersion; to allow it to dry without such rinsing might injure it.

By pouring a quart of one of these mixtures, added to a pailful of water, into drains, sewers or cesspools, and repeating the application as may be required, will destroy all their offensive effluvia.

Meat will keep for some time without any taint, and without the molestation of flies, if immersed in one of these solutions for an instant, and hung up; and all tainted meat, fish, game, etc., will be rendered sweet by a little sprinkling of the same.

To purify water in cisterns, and destroy the animalcules in it, add to every one hundred gallons about a pint of one of the solutions.

The washing of bedsteads with one of the solutions, and putting it into all the crevices, will destroy bugs.

A room just painted may be slept in safely, if one of the mixtures be sprinkled about, and left in shallow dishes.

Stables, slaughter-houses, hog-sties, privies, and all places from which offensive smells arise, may be thoroughly purified by these mixtures; or, still better, by the use of sulphur-naphtha, "oil of milk," which is to be diluted in the proportion of one teaspoonful to a quart of water, and used very freely. This is one of the most excellent wound dressings now known, but should be used in one-half strength solutions.

Being guardians of the public health of such wide application, and of so great utility, it is surprising that they are not more used.

Freezing Mixtures.

IN treating wounds, inflammation, etc., it is often quite important to have ice, where it is not to be obtained without manufacturing it. Accordingly, I give here a few directions for its immediate production.

The salts used should be in a crystallized state, with as much water in them as possible without being damp. They should be coarsely pulverized at the time of using, and put into the water contained in a basin, or other suitable vessel. The water to be frozen should be inclosed in a thin vessel, and immersed in the freezing mixture. To obtain extreme degrees of cold, the ingredients and the vessel should be cooled by one mixture before being mixed for another.

To five drams of pulverized hydrochlorate of ammonia, and five drams of pulverized nitrate of potash (nitre), add two ounces of water, in a tin, stone-ware, or glass vessel, and you may freeze water, sea-water, milk, vinegar, or oil of turpentine. It will cause the thermometer to sink from 50° above zero to 10° above; that is, *forty degrees*.

A mixture of five drams of sulphate of soda, and four drams of diluted sulphuric acid, will sink the thermometer seven degrees lower than the above, namely, down to 3° above zero, or *twenty-nine degrees below the freezing point*.

If six drams of sulphate of soda, four drams of hydrochlorate of ammonia, two drams of nitrate of potash, and four drams of diluted nitric acid be put together, the mixture will lower the thermometer 60° ; that is, to 10° below zero, or 42° below the freezing point.

Besides the above the following combination may be used:

Muriate of ammonia, five ounces; nitrate of potash, five ounces; water, sixteen ounces. Mix.

Nitrate of ammonia, four ounces; crystalized carbonate of soda, four ounces; water, four ounces. Mix.

Nitrate of ammonia and water, equal parts. Mix.

Nitrate of ammonia and nitrate of potash, five parts each; sulphate of soda, eight parts; and water, sixteen parts. Mix.

Phosphate of soda, nine parts; diluted nitric acid, four parts. Mix.

Sulphate of soda, eight parts; muriatic acid, five parts. Mix.

Sulphate of soda, six parts; nitrate of ammonia, five parts; diluted nitric acid, four parts. Mix.

Freezing Mixtures with Ice. — Snow or pounded ice, two parts; salt, one part. Mix. This will sink the thermometer to 5° below zero.

Snow or pounded ice, four parts; salt, two parts; muriate of ammonia, one part. In this mixture the thermometer will go down to 12° below zero.

Snow or pounded ice, twenty-four parts; common salt, ten parts; muriate of ammonia, five parts; nitrate of potassa, five parts. Mix. Gives 18° below zero.

Snow or pounded ice, twelve parts; common salt, five parts; nitrate of ammonia, five parts. Mix. Gives 25° below zero.

Snow, eight parts; muriatic acid, five parts. Mix. Gives 27° below zero.

Snow, seven parts; diluted nitric acid, four parts. Mix. Gives 30° below zero.

Snow, four parts; chloride of calcium, five parts. Mix. Gives 40° below zero.

Snow, three parts; potassa, four parts. Mix. Gives 51° below zero, or 83° below the freezing point.

The Nurse. — When all the arrangements are completed in the sick-room, little benefit can be anticipated if a proper nurse be not obtained to render them available to the invalid. Every female who wishes to act as a sick-nurse should be obliged to serve a certain time as an assistant nurse in one of the public hospitals, and to receive a certificate of her efficiency before she leaves the establishment. The advantages which the public derive from a body of nurses educated in this manner must be obvious to every one.

In hiring a sick-nurse, the qualifications which should regulate our choice refer to *age, strength, health, temper, disposition, habits* and *education*.

Age. — She should not be under twenty-five, nor above fifty-five years of age. This period is fixed upon on account both of the physical powers and the moral conduct of the individual. Under twenty-five, the strength of a woman has not reached its maturity, and is scarcely adequate for lifting patients in and out of bed, and for many other duties which require strength, connected with the office of a nurse; but the strength and the muscular power in females begin to fail after fifty-five, when the natural transition from maturity to decay takes place.

Strength. — The foregoing remarks respecting age render it almost unnecessary to say that a woman of a naturally delicate frame of body is unfit for a sick-nurse; at the same time, a coarse, heavy, and masculine woman is, for many reasons, objectionable. Whilst strength is requisite, the frame should be such as to indicate activity.

Health. — None of the qualifications of a sick-nurse are of more importance than health. An individual who herself requires attention is ill-calculated to attend upon others. A woman who is asthmatic, or has any difficulty of breathing, or a habitual cough; who is rheumatic or gouty, or has any spasmodic affection; who is afflicted with palpitation; or suffers from periodical headache, vertigo, or a tendency to paralysis; or who is consumptive, or scrofulous; or has defective sight or hearing; or anything which causes decrepitude, is disqualified for a sick-nurse. It is important, also, to ascertain that there is no hypochondriacal or hysterical tendency, nor predisposition to mental depression.

Temper and Disposition. — It is scarcely requisite to say that an attendant upon the sick should possess a happy, cheerful, equal flow

of spirits; a temper not easily ruffled; and kind and sympathetic feelings; but, at the same time, not such as to interfere with firmness of character. The expression of the countenance should be open and winning, so as to attract the good-will and confidence of the invalid: a pleasing and gentle manner being more likely to gain esteem, and insure obedience to the orders of the physician, than the most persuasive arguments which can be addressed to the understanding of the patient.

A collected, cheerful expression of the countenance, in the attendant on the sick, is likely to inspire hope, and to aid the efforts of the physician for the recovery of his patient.

The general disposition of a sick-nurse should be obliging. Every little office, which the invalid may require to be done, should be performed at once, and without the smallest apparent reluctance, even when the necessity for its immediate performance is not absolute. There is also an earnestness of manner, which should, if possible, be obtained or acquiesced in by the sick-nurse, as it impresses the idea that she feels deeply interested in the case; a circumstance which is always highly appreciated by the patient.

Finally, it is unnecessary to say that a nurse should be honest, as no description of servant has so much in her power. But the honesty of the nurse is not to be measured by her respect for property; she must be above imposing on the physician, with respect either to medicines or to diet. Her religion, also, should be sincere, but not pharisaical; and although she may occasionally persuade her charge "to put his trust in God, the fountain of health," * yet she must recollect that preaching is not her province; and, when mistimed, even the best advice may prove not only profitless, but injurious; and this is especially likely to be the result when the doctrines she professes are of a controversial kind.

With respect to gossiping, it is a detestable habit under any circumstances; but in a nurse it may be productive of the greatest danger, produce family feuds, and a thousand other evils.

In her Habits, a sick-nurse should be sober, active, orderly, and clean, and neat in her person.

The first of these habits — namely, *sobriety* — is so essential a qualification in every attendant in the sick-room, that it requires no comment. Happily, the desire for ardent spirits is now less frequent than formerly, when women were seldom employed as nurses until they were nearly superannuated, and until their habits, good or bad, were too firmly rooted to be removed.

The Activity essential for a good nurse does not imply a bustling or fidgety manner, but a quiet, steady method of proceeding in the performance of her duties, equally devoid of fluster, turbulence or noise. This activity is generally associated with orderly habits; a most valua-

* Fuller.

ble qualification, and without which the sick-room becomes a scene of confusion and disgust. Every medical man must have witnessed this state of disorder with regret, when, on visiting his patient, he finds no chair to sit upon until some article of bedding or of clothing be removed from it, and the seat dusted with the apron of the nurse; and when a former prescription, or anything else, is wanted, he must wait until the nurse rummages out half a dozen of drawers in search of it.

Another quality, usually conjoined with activity and orderly habits in a nurse, is cleanliness in her own person and in that of her charge, as well as that of the sick-room. The dress of a nurse should be simple and neat, without trimmings. Nothing is more out of place than a fine lady attempting to perform the duties of a nurse.

Education. — It may appear a refinement to talk of the *education* of a nurse; but there is not a greater difference between noon-day and midnight than between an educated and an ignorant nurse. The former is often an aid to the physician, not only in carrying his orders into effect, but by observing and informing him of symptoms of great importance which have occurred during his absence; whereas the latter is a source of constant anxiety, and too often assumes the privilege of acting in direct contradiction to his orders, and according to her own opinion.

Unhired Attendants.

THE selection of a good nurse, however eminently qualified she may be for her duties, does not supersede the attendance of a relative or friend in the sick-room; on the contrary, I can conceive no condition so deplorable as that of an invalid left altogether to the care and management of a hireling. It is, nevertheless, too true that few ladies, even those who are wives and mothers, have any acquaintance with the arrangements of the sick-room, and the management of the invalid; they are, consequently, too often forced to be guided by, and to rely for instruction on, the nurse, instead of being able to superintend her conduct, to ascertain that she performs her duty, and to correct her failings.

The degree of *intelligence* which is demanded in a nurse is very different from that which is requisite for a wife or a relative in the sick-room. The intelligence of the nurse is directed to supply the wants of the invalid, to administer to his comforts, and to obey the instructions of the physician; that of the friend or relative involves the power of discriminating disposition and temper; of watching the progress of the disease, and judging of the propriety of not pursuing certain measures, which, although indicated by the symptoms at the time of prescribing, yet may require to be altered, and consequently detailed to the physician, whose presence may be requisite before his next intended visit. It is of the utmost importance, also, that rela-

tives attending in the sick-room should be able to control their feelings in the presence of the invalid.

Nothing is more essential, in the domestic management of diseases, than a knowledge of the natural disposition and temper of the invalid. An irritable or a passionate man requires a very different management from that which is proper for a man of naturally mild and easy disposition. Disease awakens, in an augmented degree, the irritability of the former; he becomes impatient of contradiction; and every time his opinions are injudiciously opposed, the turbulent agitation of the nervous system which follows either increases the disease or weakens the influence of the remedial agents. On the other hand, a mild and gentle disposition often leads to extreme sensitiveness, when disease attacks the body; a word, a look, is sufficient to touch some sympathetic cord: to unstring the whole nervous system; and to augment the morbid susceptibility already present in the habit to a degree that is not always devoid of danger. Much discretion and judgment, therefore, are requisite in both instances; in the one case, to prevent ebullitions of temper; in the other, to refrain from anything that might be construed by the invalid into harshness; and yet at the same time, in each case, to maintain that influence over the patient which the treatment of every disease demands in an attendant on the sick.

Prejudice and Antipathies. — In those who are imperfectly or erroneously educated, the judgment is apt to be biassed by *prejudice* and *antipathies*; and, under the influence of these, it is misdirected in a manner of which the individual is often wholly unconscious; thence the necessity of freedom from prejudice in the attendants in the sick-room, and the farther importance of the friends or relatives of the sick being able to superintend the conduct and the management of hired nurses. On the other hand, the judgment, even in the well-educated, is apt to be misled by the *affections*, the influence of which is as much opposed to the healthy exercise of discrimination as the prejudices of the ignorant. Self-control, therefore, is also an essential qualification of the sick-room.

It is only from knowing that the attendants of the sick are possessed of intelligence and self-control, that a physician can rely upon having his orders correctly and duly executed; when those qualities are absent, he has to dread, on the one hand, the presumption of ignorant prejudice; and on the other, the improper yielding of sensitive indulgence. To the invalid, also, it is important to know that the directions of his physician are filled by an intelligent person; for, even in the most severe diseases, as long as the mental faculties remain unaffected, a sick man is capable of detecting ignorance, or the effects of prejudice, in his attendants; and, when he is convinced of the existence of either, all the influence of the individual, whether nurse, or friend, or relative, is at an end.

Were the business of the sick-room (independent of the wants and

comforts of the invalid) confined to the mere observation and collection of facts — namely, the noting of the symptoms of disease — and reporting them to the physician, it would be superfluous to urge the necessity of superior intelligence in its superintendent; but many of its duties require not only a well-regulated understanding, but an equally sound condition of the moral feelings and the benevolent affections, with a recognition of the authority of conscience in the whole operations of life. In the period of sickness, under the direction of the judicious and discreet, an invalid may be led to the investigation of his moral and religious condition, and to review his past conduct, with the determination of turning the result to his future welfare, should he happily recover and re-enter society. Surely such important duties as these cannot be intrusted to the unqualified, or the ignorant, or the hireling; nor can more be required to demonstrate the importance of adding to the other branches of female education a knowledge of the various important duties of the sick-room, which females, whether as mothers or daughters, or wives or friends, are likely to be called upon to fulfil.

Prognostics.

IN every disease the medical attendant is naturally called upon to deliver his opinion of the degree of danger which hangs over the patient: hence, it is unnecessary to enter into any minute details on the subject of prognostics. But, as in many diseases changes occur, in the absence of the practitioner, which ought instantly to be examined into, in order that the danger likely to accrue from them may be averted, it is important that the friends and ordinary attendants of the sick should be aware of their presence, so as to obtain the immediate assistance of the medical attendant. Were this information, also, more generally diffused, many unnecessary visits would be saved to the physician, and much unfounded suspicion of danger prevented from distressing and torturing the minds of the friends of the sick.

In Fevers *delirium* alone should excite *no* alarm, unless it be very high, or of the low, muttering, incoherent kind. In jaundice, and in diseases of the chest, it is alarming; and in the latter stages of pulmonary consumption, its presence always indicates the approach of death.

Great *confusion of thought, loss of recollection* of the most recent occurrence, a restless, wandering eye, and a correspondent vacancy or confusion of countenance, are always to be dreaded in fevers and in diseases of the brain. An expression of *great anxiety* is equally alarming in all acute diseases; and a presentiment of death is still more to be dreaded.

Hoarseness, with constant spitting, occurring at an early period in small-pox, is very unfavorable.

Squinting in affections of the head ought to be particularly noticed, and mentioned to the attending practitioner; and the same remark applies to a greatly *contracted*, or a *dilated*, or an *immovable* condition of the pupil of the eye; or the turning up of the pupils under the upper eyelids.

Deafness is *not* an unfavorable occurrence in continued fever; but a sudden attack of headache in pulmonary diseases ought instantly to be mentioned to the physician.

The Sudden Disappearance of Pain in inflammatory affections of the bowels is always to be dreaded; but it does not in every instance portend the existence of mortification.

Cough, depending on inflammation of the bronchial membrane, suddenly supervening on a suppressed eruption, is always to be dreaded.

In Croup, when the breathing is *audible*, or when there is a *crow-ing* sound in inspiration, or a *cooing* or *croaking* respiration, danger is present.

In Whooping-Cough, when the paroxysms suddenly increase in violence, and the face becomes livid, and the thumbs are drawn across into the palms of the hands, the appearance of convulsions may be anticipated: hence immediate notice of these symptoms should be communicated to the medical attendant.

Rigors invariably excite alarm; but they are only dangerous in chronic internal diseases, in which they often indicate the formation of pus, or the existence of suppuration.

Pallidness of the countenance, with a slight degree of *lividity*, are symptoms of hazard in inflammation of the lungs.

The Position of the Patient as he lies in bed, especially in fevers, is of much importance. Constantly lying on his back, with a tendency to sink to the bottom of the bed; a propensity to keep the arms and the feet out of bed, and to uncover the trunk; or to pick the bed-clothes; tremors; twitching of the tendons; grinding of the teeth, and sleeping with the eyelids half open, and the white of the eyes only seen; are all justly regarded as symptoms of great danger.

Fainting (*Syncope*) is to be considered alarming in diseases of the heart, or during profuse bleeding from the nose, or from any other part: *deep sighing*, also, under such circumstances, is most unfavorable, and often indicates rapid dissolution.

Hiccup, in the advanced stages of either acute or chronic diseases, is invariably alarming.

Difficulty of Swallowing, also, in the advanced stages of fever, palsy, and affections of the head, always indicates extreme danger;

vomiting, on the contrary, is not unfavorable, unless it be very severe and protracted; but, if the ejected matters be putrid, or feculent, then the vomiting is always to be dreaded.

Coma, or an irresistible propensity to sleep, following the sudden suppression of gout, or the cessation of periodical bleeding in piles, or the healing of old sores, is always alarming, and requires prompt medical assistance.

Convulsions without fever or any affection of the head seldom prove dangerous; but they are never free from danger when they are accompanied with stupor or coma. They are also dangerous when inflammatory fever is present. They are less dangerous in women than in men, in the young than in advanced age. In infancy, convulsions are more to be dreaded in the robust than in the delicate and irritable child.

Diarrhœa is, under every circumstance, an unfavorable event, when it occurs either in fevers, or in the termination of chronic diseases; and the passing of involuntary stools, when scarcely any diarrhœa exists, is equally to be dreaded.

Retention of the Urine, as well as its *involuntary discharge*, is always an unfavorable symptom.

Purple Spots appearing on the skin, *livid lips* and *cheeks*, *oozing of blood*, *sudden flushings* followed by pallor, are unfavorable symptoms; and the appearance of œdematous swellings of the legs and skin in the last stage of organic diseases always indicate approaching death. When *purple spots*, also, appear in small-pox, with flattening of the pustules on the trunk of the body, and a white, pasty aspect of the eruption in the face; and if, at the same time, the extremities become cold, any hope of recovery can scarcely be entertained.

Great and continued or progressing *emaciation* in chronic diseases, and what is termed the *facies Hippocratica*, are to be dreaded.

Excoriations on the parts on which the body rests, — for example, the haunches, or the lower part of the back, — especially if these become livid and sloughy, always indicate extreme danger.

Great Difficulty of Breathing, even to a feeling of suffocation, is not necessarily hazardous in *asthma*; for although few diseases are so little under control by the interference of the physician, yet asthma seldom proves fatal, unless it tends to the production of other diseases.

In Consumption, partial sweating, as of the head, the chest, or the limbs, is always an unfavorable symptom.

When *pregnancy* occurs in a woman laboring under consumption, the disease is arrested until after delivery, as if Providence threw a shield over the mother for the safety of the offspring.

The Sudden Disappearance of Swelling of the Legs, in chronic organic diseases, is indicative of approaching death.

When a child, instead of rallying after any acute disease, becomes *emaciated*, and the belly is large and tympanitic, there is always much danger.

Bed-Sores.

THE danger of bed-sores is often in proportion to the carelessness of the nurse, although the condition of the patient has much to do with it. They attack first the skin at the end of the spine, the hip-joints, knees, elbows and heels.

Debility from continued fever, from paralysis, old age, continued pressure, unclean bedding, and the untidy habits of the nurse, are the immediate cause.

The first appearance of a bed-sore is to be noticed in redness of the skin; soon a blister forms, the skin breaks away, leaving the surface raw and moist. Decomposition sets in very quickly if the symptoms are neglected, and the blister becomes an open sore.

The outcome of the disease depends upon the condition of the patient, and the removal or non-removal of the cause.

Treatment. — If there is much debility, tonics should be given. The various places of the body which are likely to become sore should be rubbed four times a day, from five to ten minutes, with a stimulating mixture like spirits of camphor or olive-oil and brandy; a good liniment is alcohol or weak bay rum. Be careful not to irritate the skin, — simply cleanse and harden. The prominences of bone may be covered with surgeon-plaster if there is sweating of the body. Unless a blister forms, the part should be relieved of pressure by air-cushions. Collodion should be applied, and the parts kept dry.

If the blister turns to an open sore, use poultices until it is open and the matter discharged, then use stimulating cleansing washes of borax-water or weak carbolic-acid. Peruvian balsam on cotton-wool is a good remedy.

The best preventive measures are careful nursing, dry, smooth sheets, air-cushions, frequent changes of position. The bedding and night-robe should be absolutely clean, dry and smooth and frequently changed.

Ovarian Disease.

OR, as it is usually termed, *ovarian dropsy*, has hitherto proved incurable; but it is relieved by tapping; and, if the powers of life be sustained by proper food, and carriage exercise in the open air; and if all medicines be let alone, except such as are required to regulate the bowels, life may be sustained for many years.

All diseases not involving organic changes are, with a few exceptions, more or less under the control of medicines, and are consequently curable. But some diseases, in which no organic changes

have been discovered, are nevertheless incurable. This is the case with spasmodic asthma, which has rarely been cured.

It is true that functional disturbances are not unfrequently associated with organic diseases; but, under such circumstances, it is the province of the attending physician to point out to the friends of the patient the greater or the less degree of danger in these complications.

Diet, etc., in Disease and Convalescence.

IN numerous instances, much hazard often exists after disease has disappeared, and when the patient is declared convalescent; and as this period in the removal of diseases is left to the management either of the patient himself or of his friends, some general remarks respecting it, and also in reference to particular diseases, are requisite.

In every recovery from sickness, whether external or internal, before the salutary advantages obtained from the treatment be confirmed, the organ or part which has suffered must be either left at rest or be used, according to the nature of the case. Thus, if any part have suffered from inflammation, it must not be used for some time after the inflammation is subdued. If the eyes have suffered, the person must neither read nor write, nor expose the eyes to the heat of the fire, nor to a strong light, until some days after every trace of the disease has disappeared. If the arm has been affected it must be kept at rest; and if the leg, not only should walking be refrained from, but the limb should be placed rather higher than the trunk of the body. If the previous disease has affected the brain, every mental exertion must be avoided; and so on, whatever may be the organ which has especially suffered. Even when the exercise of the organ is resumed, it should not be carried to fatigue, nor, on any account, should it be such as to produce excitement. At the same time, it must not be forgotten that, in the treatment of external injuries, when it has been necessary to keep the limb long in a sling, in one position, — as, for instance, in fractures, — the muscles which bend the arm acquire from the habit a contraction which cannot be overcome by the antagonist muscles, owing to the length of time they have been on the stretch, weakening their contractile power. The arm, therefore, should be frequently taken from the sling, and, being rested upon the elbow, a moderate weight should be held in the hand, and friction with oil employed upon the contracted muscles. It is true that surgeons usually give directions for this operation, before they quit the management of the case; but surgeons, as well as physicians, are sometimes dismissed before the convalescence is complete; on which account, arms and limbs have remained contracted for life, from a want of the knowledge necessary to counteract the evil at an early stage. I say nothing respecting the continuance of remedies during convalescence from many diseases, except urging the necessity of regulating the bowels.

The most important part of the management of convalescence certainly refers to *air*, *exercise*, and *diet*. The errors daily committed, in all these matters, exert the most powerful influence in retarding complete restoration to health; and often, indeed, induce evils of a more formidable kind than the diseases from which the patients have just emerged.

1. *Air*. In every convalescence, whatever may have been the nature of the disease, if it has been so severe as to wear down the strength of the invalid, country air is essential. The benevolent Author of our existence has made medicinal the hills, the vales, the groves, and all the harmonies of nature; and in the repose of these man finds a balm, not only for a wounded spirit, but for his stricken body.

In selecting a country residence for a convalescent, care must be taken to ascertain whether any source of malaria exists in the neighborhood; as, in that case, even if all other circumstances be favorable, the place is exceptionable.

2. *Exercise*. In convalescence, much caution is requisite in apportioning the exercise to the degree of returning strength. When the convalescent is still too feeble to take sufficient exercise on foot, the best substitute for it is riding horseback; but, as soon as walking can be borne, it should be preferred to either horse or carriage exercise.

3. *Diet*. In health, diet may be left, in a great degree, to the inclination or the taste, as far as regards the quality of the food; and, although diseases occasionally originate from repletion, yet, in general, the appetite may be considered as the best regulator of quantity, when the food is simple, and the appetite is not pampered by high seasoning and rich sauces. In disease, however, a very opposite rule is to be observed; the regulation of both the quantity and the quality of the food is of the utmost importance. The taste is often so perverted as to desire that which would prove injurious; and were appetite to be the guide of quantity, diseases would frequently not only be increased in severity, but life itself would be brought into jeopardy.

As soon as solid animal food can be taken with impunity, that which is most digestible should be selected. An opinion has generally prevailed that gelatinous matters, and meats which readily yield jelly, — such, for example, as veal and lamb, — are the most easily digested, and at the same time are also the most nutritive. This is a mistake; for, with the exception of poultry, the flesh of young animals is stringy and of a lax fibre, and is even less easily digested than that of too old animals, which presents great density of texture. The middle-aged animals afford the most digestible food.

Nothing tends to lessen the density of the fibre of every kind of animal food so much as keeping it for a certain time before it is cooked. In this case the tenderness is the result of incipient decom-

position or putrefaction; but the utmost caution is requisite to prevent this from advancing so far as to present the slightest trace of taint in the food of the convalescent. In the low state of vitality in convalescence, the change which commencing decomposition (putrefaction) causes, renders animal food in that condition a source likely to occasion either a relapse into the disease from which the patient has recovered, or to form a new disease.

In examining the relative value of other articles of diet adapted for the sick and convalescent, the first which presents itself to our notice is

Milk. — As milk is the food of almost all young animals, its digestibility appears at once evident; and there can be little doubt that it is very digestible, when it is drunk immediately after it is drawn from the udder of the cow or the goat, before its components have time to separate. When this separation is effected, either spontaneously by time, or by means of rennet or other agents, its properties are altered, and its digestibility is lessened.

Cream, when intimately united with the other components of milk, — namely, the curd, or the caseous part, and the whey, — is not the same substance as after its separation. In the milk, it is more easily digested, and is the most nutritive part of the milk. But in its separate state it is ill adapted either for the sick or convalescent except in the form of butter, which is not unwholesome unless it be eaten in excess or be melted. Although cream is not as digestible as milk, yet it is much less liable to turn acid in the stomach; it is often beneficial to dyspeptics, either alone or diluted with water. In the same manner the separate *curd* is indigestible; and *whey* itself, although highly nutritive, yet is flatulent; nevertheless, it is an excellent demulcent in many cases of disease. But none of the components of milk are equal to milk itself. It is often necessary, in convalescence, to dilute it with water.

Eggs. — It is not uncommon to hear that the yolk of a raw egg, beaten up with water and sugar, with the addition of a small quantity of white wine, is a light and nutritive aliment in convalescence, and even in some states of disease; but *eggs* are much less digestible in this form than when they are lightly boiled. In jaundice, however, arising from viscid mucus obstructing the orifice of the common duct, the yolk of a raw egg beaten up with cold water is serviceable.

Fish, at least the white kind, stimulates much less than the flesh of land animals; hence it is a proper food for those laboring under some acute diseases; and also for convalescents, when a sudden return to more stimulating food would prove hurtful. But it is not adapted for convalescents when the object is to bring up rapidly the strength of debilitated habits.

Raw *oysters* have been erroneously supposed to be both easy of digestion and nutritive. The latter opinion is, in some degree, true;

but the former is erroneous. Raw oysters are less digestible than plainly-cooked oysters. Both are improper for the sick and for early convalescents. Lobsters, crabs, prawns, cray-fish, scallops, and other shell-fish, are still more objectionable.

If fish of any kind be admissible, it should be simply boiled; fried fish is even worse for invalids than the outside or the brown of roasted meat.

Vegetables. — In reference to *vegetable diet*, it is only the mildest description of esculent roots that are fitted for the use of the sick. In preparing all of them for the sick room, they should be well boiled in two distinct waters, until they are soft and very soluble, and in a state not to leave undissolved anything which could act as a mechanical irritant on the intestinal canal. When properly cooked, they are moderately nutritive, and free from any stimulant properties; and they are well adapted for the stomach of the sick, unless in cases in which the torpor of the organ is such as to permit them to run into acetous fermentation and to prove flatulent.

Fruits. — With respect to *fruits*, they produce the most diversified effects; and, consequently, are more or less proper for invalids, according to circumstances, either connected with themselves or with the condition of the patient at the time. The stone-fruits, with the exception of the ripe peach, or the nectarine, are to be rejected. The apple tribe, except very soluble pears, are still less admissible. The apple, however, when roasted, and when the seeds and the hard central parts, as well as the skin, are removed, is less objectionable; and, as it possesses laxative properties, the roasted apple is well adapted for the sick, when food is at all allowable, and when the bowels are torpid. The orange, if fully ripe, is grateful and wholesome to all invalids, and is only equalled in these qualities by the grape; but in using the orange, the pulp should be rejected. The juice of the grape-fruit is good and refreshing, but care should be taken not to use any of the pulp, on account of its bitter taste. Care also should be taken not to swallow either the skin or the seeds of the grape. Strawberries are a little stimulant, of easy digestion, and more cooling than the other small fruits; mulberries are also unexceptionable; but currants and gooseberries, and even raspberries, are not free from objection for invalids laboring under acute diseases.

With the exception of *oat* and *wheaten bread*, especially that made from Franklin Mills flour (see receipt), all the varieties of farinaceous aliments may be regarded as modifications of starch, containing little nutritive matter, and therefore well adapted for the sick-room. It has been supposed that arrow-root, sago, tapioca, and similar substances, are very nutritive, because they form mucilages with boiling water; but this is not the fact; and were they very nutritive, they would be ill adapted for invalids. Rice, in every case where the stomach is in an acescent state, is preferable to the other farinaceæ. because it is less fermentable.

The farinaceous food which is ordered in the convalescence of children from acute diseases, is often made of bread so as to constitute *pap*. No description of food has a greater tendency than this to become sour; a quantity only sufficient for a single meal, therefore, should be made at a time; for what remains is always sour before the next meal; and even if the quantity be small, and it be mixed with fresh *pap*, it communicates its faculty of becoming sour to the whole mass.

Fluid Aliments.

Water. — The best and the most universal beverage for the sick is *water*: but the qualities of water differ, according to the sources whence it is procured. The fewer foreign ingredients it holds in solution the greater are its diluent properties. Distilled water, or rain or river water filtered, and that of soft-water springs which filtrate through silicious strata, are the only kinds proper for the use of the sick-room. Hard water, under whatever name it is found, whether as spring water, or pump water, or well water, should be excluded. The impurities of river and rain water are merely held in suspension; consequently, they are readily removed by filtration.

Water itself is aliment; many individuals under certain circumstances have lived for a considerable time upon it alone. Those who live chiefly on animal food require more drink than those who eat much vegetable matter.

The influence of water on the animal economy may be regarded in two points of view:

As an article of diet.

As a medicinal agent.

As an *article of diet*, in health, water is the beverage provided by nature for all animals, man not excepted. The sensation of thirst is the natural call for fluids, either to assist digestion, or to allay a dry, hot condition of the mouth and the gullet. The consequence of not satisfying this call is fever of a nervous kind; and, if it be long resisted, inflammation of the air-passages. On the other hand, too much fluid is injurious; for although the vital powers of the stomach counteract the tendency which it affords, by over-diluting the gastric fluid, to the fermentation of the aliment in the stomach, yet when it is in excess, those vital powers languish; hence spontaneous chemical changes in the contents of the stomach take place, and induce dyspepsia. For all the purposes of dilution *in health*, water is adequate, and it is the only truly wholesome beverage.

As a *medicinal agent*, water is demanded in every disease in which a dry skin and an elevation of the natural heat of the surface, constituting fever, are present. In this case, the desire is for cold water or cooling fluids; and it should always be indulged. The degree of temperature, however, must be regulated by the condition of the invalid; but the best medium temperature is between 50° and 60°

Fahr., although even 60° is too low, when the debility of the frame is considerable.

The qualities of the various kinds of beverages proper, and generally employed in the sick-room, should be known.

Toast-water, when properly prepared, which it seldom is, forms a useful beverage in the sick-room. It is slightly nutritive, owing to its containing a small portion of gluten, in conjunction with fecula and sugar. It is one of the oldest and one of the best diluent demulcents; diluting at the same time that it softens the acridity of the secreted juices of the stomach, in febrile diseases.

Gruel, whether made of groats or of oatmeal, is less mild and demulcent than barley-water; and it is more likely to undergo the acetous fermentation in the heat of the stomach; a circumstance which is greatly favored by the sugar and butter which is sometimes added to it. Unless gruel be very thin, it can scarcely be regarded as diluent; and when thick, it is too heating an aliment for patients laboring under febrile symptoms.

Tea, in the form in which it is usually taken, is too stimulant and astringent to be a good diluent: and, when it is strong, the narcotic property which it possesses renders it improper for most invalids, whatever may be the nature of their diseases. As it is, nevertheless, agreeable to most palates, and very refreshing, it may be taken in moderate quantity, provided it be not strong, without any hazard.

Sage, *balm*, and *mint teas*, are often substituted for common tea. Each of them undoubtedly allays the irritability of the stomach in some cases; but, as general beverages in disease, they are less useful than toast-water. *Raspberry vinegar*, *lemonade*, *tamarind tea*, *apple tea*, and similar compound diluents, should never be administered without the consent of a physician. If a patient be taking an antimonial, they will excite vomiting; if a mercurial, griping; and they are equally incompatible with many other medicines, and with many conditions of the stomach in disease. They are a description of beverage greatly recommended and largely distributed by the Lady Bountifuls in the country, and have frequently been productive of serious mischief.

Coffee is more heating, and consequently less admissible than tea; it may, however, be taken, if it be largely combined with milk. *Cocoa* and *chocolate* are still more objectionable than either tea or coffee in the sick-room. Shells are good and nourishing.

With respect to the Number of Meals, and the periods best adapted for taking them, it is scarcely requisite to remark, that, although in health three moderate meals, at proper intervals, are customary, and well adapted for the support of the frame, yet, under the changed condition of the system in disease, it would be improper

to take any regular number of meals, or to observe any stated periods for taking them: hence no general rules can apply.

As a general rule, in the decline of diseases, and on the approach of convalescence, when the desire for taking food returns, the best time for the principal meal, *dinner*, is about two hours after noon. If the breakfast be taken at nine o'clock, and the evening meal at seven, the hour of two is the middle period of the day; so that, when dinner is taken at that time, the intervals between breakfast and dinner, and between dinner and supper, are not only equal, but neither is too short to limit the complete digestion of the previous meal, nor too long to injure the powers of the weakened stomach by protracted fasting.

All acute diseases require more or less abstinence, especially when the object of the treatment is to lower the system; and in some chronic affections, abstinence is almost essential. If this be true, the necessity of the strictest observance of the directions of the physician on this subject must be obvious. It is one, however, which is not only neglected, but is often combated both by nurses and friends; and indulgences, which are supposed to be of too trivial a nature to cause any injury to the sick, have often been followed by fatal effects.

But, although abstinence be requisite during the existence of an acute disease, yet it is injurious when it is too rigidly maintained after convalescence is actually established: it often induces a new train of symptoms, not very unlike those for which it was properly prescribed and the removal of which it has aided; namely, acceleration of the pulse, increased impetus of the heart, headache, and even delirium.

General Diseases.

HAPPILY, in *febrile affections*, the appetite of the invalid is not in a condition to desire food; and no stronger demonstration can be required of the impropriety of forcing it upon him under such circumstances. Simple fluids, such as diluents, are all that he desires, all that the stomach can bear; and such alone should be administered in fever, before that low condition of the system, which demands the use of wine or other stimulants, supervenes. In these cases, when the patient desires more nourishment than is usual, animal food ought not to be given, unless by the direct recommendation of the physician. Indeed, in general, the inclination of the invalid happily revolts from animal food, as much as experience condemns its administration.

While febrile symptoms are present, farinaceous matters, little nutritious, such as barley-water, gruel, arrow-root mucilage, or sago, acidulated with lemon-juice, and sweetened to the taste of the patient, are most suitable; but even these should be given in small quantity, and at considerable intervals. The beverage generally most agreeable, and also most salutary, to those suffering under fever, is cold water.

In the decline of fevers, even, as I have already remarked, although the severity respecting diet should be relaxed, yet much danger may result from mistaken kindness and over-zeal, in urging animal and stimulant food at too early a period of the convalescence. Indeed, the necessity of caution at this time is greater than during the continuance of the fever; and the more acute the disease has been, the greater must be the caution in the convalescence, especially if the treatment has been of an evacuant and lowering description.

The first change of diet, in the decline of fevers, should be to another article of the same kind of food which was allowed in the disease; for example, from simple *arrow-root mucilage* to *arrow-root and milk*, or to some other of the farinaceous compounds; whilst, at the same time, *asses' milk* may be given in small quantity in the morning. *Rice*, one of the farinaceæ, is generally supposed to be astringent, but this is a mistake. It forms an excellent diet in all cases of early but decided convalescence. It should be well-boiled, and mixed either with broth and beef-tea, or gravy which has been cooled, and the fat taken from it. In the transition to animal food, *beef-tea*, *chicken-broth*, and *mutton-broth*, and other liquid animal decoctions, should be first resorted to; then *white fish*, simply cooked; for, although fish is more digestible than animal food, yet it affords much less stimulant nourishment; it is therefore better fitted for the early stage of convalescence. When convalescence is completed, a more generous diet is admissible.

With respect to beverage, *water*, *toast-water* or *lemon-peel-water*, is sufficient, until the medical attendant declares that a little wine is requisite.

In convalescence from *fever*, it is an error to permit the patient to get up too soon. He should not leave his bed until his strength be considerably advanced. No danger can result from too strict an observance of this rule; whereas much risk may be incurred by its neglect.

If the head has been much affected, every mental exertion should be refrained from during the convalescence; and, according to the degree of suffering in any local organ, precautions must be taken to guard that part of the frame against a fresh attack of disease.

Eruptive Fevers require more precaution in convalescence than general fevers, both as regards diet and exposure to sudden alternations of heat and cold. This is more especially essential after measles and scarlet fever.

Measles are often followed by a distressing cough, and other symptoms of pulmonary inflammation; or by a harassing diarrhœa, which wears down the strength; or by inflamed eyes, catarrh, or obstinate toothache. In infants, *canker of the mouth* occasionally makes its attack, and proves fatal. All these affections, after measles, might generally be prevented by taking care not to allow too soon a return

to the use of animal food, or too early an exposure to cold or to night-air. Even in summer, flannel should be worn next the skin for some weeks after the disease has disappeared.

Scarlatina is frequently followed by dropsical symptoms; which, however, might generally be avoided by the same attention to diet and regimen as after measles.

Small-Pox, when severe, and especially when confluent, is very apt to awaken into activity the dormant seeds of scrofula, if any hereditary taint exists in the constitution; hence abscesses, ulcers, and swelled glands make their appearance. These demand the aid of the physician or the surgeon. But if the convalescent be properly dieted, and recourse be had to a change of air as soon as his strength will permit, these evils may be avoided.

Erysipelas not unfrequently attacks convalescents from small-pox and other eruptive fevers. When it occurs, independent of any prior disease, the same attention to diet and regimen is requisite as in other eruptive fevers.

Convulsions, it is well known, are not unfrequently the result of errors in diet, in individuals with an irritable condition of the stomach and bowels. Advice should always be demanded respecting the diet of those who are liable to, and who suffer from, convulsions; but it must not be supposed that when they occur in children and have been subdued, a system of starvation is necessary to prevent their recurrence. As far as regards convalescence in such cases, it will be proper to bear in recollection the following rules:

1. When the patient is of a *full habit*, has a short neck, and a tendency to diseases of the head, the diet should be spare. The use of animal food, indeed, in such a habit, should be *wholly* prohibited in childhood, and very sparingly employed by adults; whilst vegetables, farinaceous matters, milk and weak broths, may be allowed.

2. When the habit of body is *spare*, and when languor and chilliness are present, the diet, although free from stimulus, yet should be nourishing, and consist of the lighter kinds of animal food; namely, poultry and fish, with a moderate share of vegetable matters.

3. Under all circumstances, and at every period of life, fermented liquors and wine should be either wholly avoided, or very sparingly used, in almost all convulsive diseases connected with affections of the head.

In convalescence from some varieties of convulsive diseases, the nature of the diet must depend on circumstances which cannot be judged of by the attendants of the sick-room; hence it should be referred solely to the medical attendant. In *St. Vitus's Dance* (chorea), for example, although a tonic plan of treatment may have been successfully pursued, yet the diet may be required to be mild, and wholly free from stimulus.

Attention to diet in *Hysteria* is most important. When the disease is connected with indigestion, the meals should be moderate: and rest in the horizontal posture should be indulged for an hour afterwards, and then moderate exercise taken. Fluid food, such as broths and gruel, are improper; yet animal food should be eaten only once a day. Tea and coffee should be very sparingly taken; and the simplest beverages, even water and toast-water, should be taken in great moderation after a meal, and should not be drunk during dinner.

In convalescence from hysteria, change of scene and air are absolutely requisite. The mind should be directed to solid studies, and everything which can cherish morbid sensibility of the nervous system avoided.

Dropsy. — An opinion was long maintained that fluids are to be withheld from *dropsical* patients. No opinion was ever founded on more erroneous principles. Dropsical patients, indeed, should be allowed the free use of fluids. With respect to diet, it should, generally speaking, be light and unstimulating: but much depends on the causes of dropsy. There is, however, less necessity for a rigid adherence to low diet in this than in other inflammatory affections.

In Palsy, abstinence from all stimulating food, solid or fluid, must be rigidly observed; and the restriction should not be discontinued in convalescence. At the same time, change of air and of scene is always of decided advantage. In every instance, an easy state of mind, and freedom from every source of irritation, as well as from the anxieties of business, are indispensable.

Gout and Rheumatism. — In no diseases affecting the general habit are abstinence and repose more essential during the attacks than in the two which head this paragraph, when they assume an acute form. When they occur in weakened or in broken-down habits, it is too often supposed that the opposite plan of diet is to be pursued, and that stimulating food and a liberal supply of wine should be indulged; but nothing is more likely to prove injurious.

When the paroxysm subsides, it is too customary to permit the invalid to glide into his usual habits with respect to diet and regimen; consequently the plethora which originated the disease gradually returns; and the same plan being continued, paroxysm follows after paroxysm, at shortening intervals, until scarcely any interval occurs, and life is sacrificed on the altar of self-indulgence.

For some weeks after the paroxysm of gout has subsided, in a young or middle-aged man, animal food should be sparingly taken, and fermented liquors altogether avoided.

Chlorosis, or Green Sickness, is a state of the habit which seems to depend on an impaired condition of the blood itself. Its treatment is well understood, and recourse to medical advice should never be neglected; otherwise it may terminate either in mental derangement

or in sudden death. In convalescence from it, the diet should be mild and light, but nutritious; the exercise should be much within the limits of fatigue, and consist of both walking and horse exercise, daily, in the open air; the body, more especially the lower extremities, should be warmly clothed; the mind ought to be amused; all sedentary occupations thrown aside; and confidence placed in the honor of the physician, who should be made the repository of any mental anxiety, especially connected with the tender passion, which may be preying upon the vital energy of the body.

Affections of the Head.

WHATEVER may be the cause of *Apoplexy*, no disease requires more prompt and energetic treatment: the alarming nature of the symptoms is always sufficient to prevent any time from being lost by attempts to relieve the sufferer without medical assistance. Should the attack not prove fatal at the time, and should it not be followed by palsy, still the utmost caution is requisite to prevent a recurrence of the disease. It is scarcely necessary to insist on the strictest adherence to temperance, both as to meat and to drink; and the importance of daily exercise, when the attack is over, and indeed for the remainder of life. Prolonged study and intense thinking must be given up; the violent and exciting passions should be subdued; and even the pleasurable moderated.

Inflammation of the brain is one of those diseases which require, as observed respecting apoplexy, the most energetic treatment. When convalescence has fortunately been established, the attention of the physician is still requisite, during several weeks, until complete recovery be fully confirmed; for the brain, after suffering from inflammation, is very apt to relapse into the same state, from the excitement of too full a meal, or over-exercise, or even slight mental exertions or emotions. On this account, the convalescent must be kept perfectly quiet, and completely free from the smallest excitement, and the strictest regimen observed. His diet should not only be mild and unstimulating, but small in quantity.

Inflammation of the eyes requires the same caution when convalescence is secured as other inflammatory affections; namely, quiet, great moderation in diet, and avoiding exposure either to much light, heat or cold, or whatever can stimulate the still highly excitable organ.

Affections of the Chest.

Inflammation of the Lungs (*Pneumonia*). — In convalescence from this disease, the temperature of the room in which the patient sits should not exceed 60° F.; and it should be free from currents of air; but at the same time it should not be close. The necessity for continuing the same elevated position of the shoulders when in bed,

which is demanded during the existence of the disease, remains even when the convalescence is advanced. The patient should be prevented from talking, and from exerting any muscular motion that can accelerate the circulation. The diet should be of that description which will support the strength without exciting or producing repletion. As the convalescence advances, and exercise is permitted by the medical attendant, it should be regular, but not hurried nor violent; and evening air should be sedulously avoided.

Pleurisy. — Inflammation of the lining membrane of the chest requires the same attention to diet and regimen during convalescence as the last-mentioned disease, except that a greater strictness with regard to abstemiousness in food is requisite; the least deviation being likely to bring on a renewal of the inflammation. When the disease assumes a chronic character, and when the object is to remove fluid effused into the cavity of the chest, and pressing upon the lungs so as to circumscribe their action, the same degree of strictness with respect to diet is not necessary; but, as in this condition of the habit the physician must continue his attendance, the regulation of the diet devolves upon him.

Angina. — In that condition of the habit which is connected with a predisposition to gout, but in which, instead of a regular paroxysm, the heart and the pulmonary organs become affected, and the disease assumes that form which has been denominated diaphragmatic gout (*Angina pectoris*), the regulation of diet is of vital importance; and it should be of as low a standard as the constitutional powers will admit. It should not be of a description either to nourish much, or to augment or to cause fullness of habit; mild animal food, in moderate quantity, may be allowed; but the staple should be of a farinaceous kind: every stimulant, whether solid or fluid, should be avoided; and wine and malt liquors regarded as poisons. The invalid himself should be made aware that whatever tends to excite or to hurry the circulation is calculated to bring on a paroxysm; nor is it sufficient that he avoids all stimulating viands and beverages; he should also be instructed that the same deleterious effects are likely to follow a full meal, even of the most proper and mildest food.

The same attention to diet, both as regards quantity and quality, is essential in *palpitations* depending upon organic disease of the heart.

Asthma. — In no affection of the chest is attention to diet so important as in *asthma*. Sir John Floyer, who himself suffered from the disease, recommends almost a degree of abstinence; which is correct in reference to quantity; but the diet, although of a light, yet should be of a solid, kind. This is especially necessary when dyspepsia is present to aggravate and excite the disease of the lungs.

In Whooping-cough, the diet, whether the patient be an adult or a child, should be of the mildest description; and perhaps no nutriment is so well adapted to support the tone of the body, without exciting it, as milk. In infancy, nothing but the breast should be given; the system of the nurse, at the same time, being kept as cool as possible by mild diet, and her mind in a tranquil state. If convulsions occur, these sometimes depend on the nature of the milk: in which case the nurse should be changed. It is still customary with non-professional persons to consider change of air essential in whooping-cough; but it is only after the malady has run its course, and convalescence is progressing, when the cough remains as a habit, that change of air is really beneficial. It is unnecessary to combat the absurd opinion, that a change even to a worse air is salutary.

Affections of the Stomach and Bowels.

ALTHOUGH *acute inflammation of the stomach* rarely occurs, yet there is a chronic form of that disease, in which, during its actual existence, and also in convalescence from it, much of the safety of the invalid depends upon domestic management. Every source of excitement should be avoided; the sick-room should be airy, and its temperature that of summer. The food should be of the blandest kind, given cold, or iced, and in small quantity: even when the convalescence is established the diet should consist of farinaceous matters, mixed with small quantities of beef-tea, or weak broths; and this severe diet should be persisted in for a considerable time after recovery.

Enteritis. — When inflammatory action extends to, or exclusively exists in, the mucous lining of the bowels, constituting this disease, the diet, during the early stage of it, should be confined to cold water, or iced almond-emulsion; after which, milk and barley-water, or weak chicken or veal-tea, may be given in small quantities; namely, two or three tablespoonfuls, at intervals of three or four hours. Nothing stronger should be ventured upon, unless expressly ordered by the medical attendant.

Atonic dyspepsia, or *simple indigestion*. — During the attack, abstinence, to a certain degree, is necessary; but, if this is not essential, the diet should be somewhat stimulant, but simple; namely, a small cup of moderately strong coffee, with little sugar or milk; or beef-tea, with a small quantity of dry toast; and, as the stomach begins to regain its tone, a little animal food of easy digestion, such as mutton or poultry.

During the intervals of the paroxysms of indigestion, attention to diet is of the first importance. As a general rule, the patient should be confined to a spare animal diet, with a moderate share of *well-boiled* vegetables, and a considerable restriction with respect to the use of fluids.

Dysentery, which implies inflammation, acute or chronic, of the same membrane as in *enteritis*, but confined to the larger and lower bowels, requires the diet to consist of the mildest farinaceous matters, strictly avoiding all solid animal food. It should be given in small quantity at a time, and the whole allowance for the day should be moderate. The farinaceous food should not be either solid, nor yet altogether fluid; the former may prove injurious as a mechanical irritant; the latter is liable to excite griping, from the extrication of much flatus.

Diarrhœa. — Much of the domestic, as well as the medical management of diarrhœa depends on the nature of the attack, and its causes; but too much attention cannot be paid to the regulation of the diet. It should be both small in quantity, and mild in quality. In the early stage, and the acute form of the disease, barley-water, arrow-root made with water, rice or grit-gruel, and light broths, are proper. In chronic diarrhœa, rice, properly boiled, and mixed with a small quantity of beef-tea, forms an excellent diet, as it nourishes moderately, and leaves scarcely any feculent matter behind it.

In Cholera, convalescence is often tedious; and nothing is so likely to cause relapse as even slight irregularities of diet. For weeks after the feverish symptoms have disappeared, the diet should consist of a very moderate quantity of vegetable matter only. The feet should be kept especially warm and the whole body clothed in flannel, to prevent that irregular distribution of blood which so strongly characterizes the disease.

After inflammation of the lining membrane of the cavity of the belly (*peritonitis*) has been subdued, the invalid should still observe the strictest diet and regimen. He should return very gradually to the use of animal food and wine. The bowels should be moderately and daily opened, the feet kept warm, and the skin maintained in a healthy condition by wearing flannel next to it, for a very considerable time after every trace of the disease has disappeared.

Diseases of the Liver. — In all cases of recovery from these diseases, whether inflammatory or otherwise, every precaution should be taken to guard against the deleterious influence of alternations of temperature, and also of damp, by clothing in flannel next the skin. Errors in diet should be avoided; and fermented liquors and stimulating beverages of every kind refrained from. When pains of the side continue, after all the other symptoms of the disease have disappeared, the introduction of a seton, if prescribed, should not be objected to; as the greatest benefit has often followed that mode of counter irritation.

ART AND SCIENCE OF COOKING FOR THE SICK-ROOM

Giving full and practical instruction for every kind of diet
and cooking for the patient, whether in
disease or convalescent.

COOKERY FOR THE SICK-ROOM.

It was said by the distinguished Dr. Rush, in his lectures before his class, that a physician ought to spend six months in a kitchen before beginning practice. A knowledge of dietetic preparations fitted for the sick, and for those recovering from disease, however apparently unimportant, adds much to a physician's power over his patient, and to his popularity and usefulness.

In giving nourishment to the sick, who are suffering from low diseases, it is an important rule which should never be forgotten, *to give but little at a time, and to repeat that often*. In cases of great prostration from disease, life may at times be endangered by a delay in giving nourishment of even a few minutes beyond the proper time.

Barley=Water.

PEARL barley, two ounces; boiling water, two quarts. Boil to one-half, and strain. A little lemon-juice and sugar may be added, if desirable. To be taken freely in inflammatory diseases.

Rice=Water.

RICE, two ounces; water, two quarts. Boil an hour and a half, and add sugar and nutmeg.

Rice, when boiled for a considerable time, becomes a kind of jelly, and, mixed with milk, is a very excellent diet for children. It has in some measure a constipating property, which may be increased by boiling the milk

Decoction of Bran.

NEW wheat bran, one pint; water, three quarts. Boil down one-third, strain off the liquor, and add sugar, honey, or molasses, according to the taste of the patient. A bran tea may be made by using boiling water, and suffering the mixture to stand in a covered vessel for three or four hours.

Sage Tea.

DRIED leaves of sage, half an ounce; boiling water, one quart. Infuse for half an hour, and strain. Add sugar and lemon-juice as required by the patient. Balm and other teas are made in the same manner.

The above infusions form agreeable and useful drinks in fevers, and their diaphoretic powers may be increased by adding a little sweet spirits of nitre.

Barley Coffee.

ROAST one pint of common barley in the same way in which coffee is roasted. Add two large spoonfuls of this to a quart of boiling water; boil five minutes. Add a little sugar.

Lemon-Water.

PUT two slices of lemon, thinly pared, into a teapot, a little bit of the peel and a bit of sugar. Pour in a pint of boiling water, and cover it close two hours.

A Refreshing Drink in Fevers.

PUT a little sage, two sprigs of balm, and a little sorrel into a stone jug, having first washed and dried them. Peel thin a small lemon, slice it, and put in with a small piece of the peel; then pour in three pints of boiling water. Sweeten, and cover it close.

Another.

BOIL an ounce and a half of tamarinds, three ounces of cranberries, and two ounces of stoned raisins, in three pints of water, till the water is reduced to two pints. Strain, and add a bit of lemon-peel, which must be removed in an hour, as it gives a bitter taste if left too long.

A Very Pleasant Drink.

PUT a teacupful of cranberries into a cup of water, and mash them. In the meantime, boil two quarts of water with one large spoonful of corn or oatmeal and a bit of lemon-peel; then add the cranberries, as much fine sugar as shall leave a smart flavor of the fruit, and a wineglassful of sherry. Boil the whole gently for fifteen minutes, and strain.

Crust Coffee.

TOAST slowly one or two slices of brown or white bread, pour boiling water over it, and drink hot or cold, according to preference.

Infusion of Malt.

To one pint of ground malt add three pints of scalding water, that is, water not quite brought to the boiling point; infuse two hours, and strain. Add sugar or lemon juice as desired. An excellent preparation in inflammatory fevers.

Lemonade.

FRESH lemon-juice, four ounces; thin peel of lemon, half an ounce; white sugar, four ounces; boiling water, three pints. Let them stand until cold, and strain. When used in fevers, a little nitrate of potash or sweet spirits of nitre may be added. It may be further diluted to the taste of the patient.

Water Gruel.

OAT or corn meal, two tablespoonfuls; water, one quart. Boil for ten or fifteen minutes, and strain, adding salt, and sugar if desired by the patient.

Milk for Infants.

Cows' milk, one part; water, two parts; sweeten slightly with loaf sugar.

It is necessary, when children are to be raised by hand, to dilute the milk. The above proportions may be altered as the child advances in age.

Rice Gruel.

GROUND rice, one heaping tablespoonful; ground cinnamon, one teaspoonful; water, one quart. Boil gently for twenty minutes, adding the cinnamon near the conclusion. Strain and sweeten. Wine may be added in some cases.

Panada.

WHITE bread, one ounce; ground cinnamon, one teaspoonful; water, one pint. Boil them until well mixed, and add a little sugar and nutmeg. Wine or butter may also be added, if desirable.

Compound Salep Powders.

SALEP, tragacanth, and sago, each four ounces; cochineal, half a dram; prepared oyster shells, one ounce. Mix, and divide into powders of one dram each. Stir one of these powders into a pint of milk, and boil for ten or fifteen minutes. To be drunk freely in diarrhoea and dysentery.

Another.

GUM arabic, tragacanth, maranta, sago, tapioca, each two drams. Mix them well together, and boil in a pint of milk, flavored with nutmeg or cinnamon. To be used as a diet in dysentery, diarrhœa, etc.

Sago Gruel.

SAGO, two tablespoonfuls; water, one pint. Boil gently until it thickens, frequently stirring. Wine, sugar, and nutmeg, may be added, according to circumstances.

Arrow-Root Gruel.

ARROW-ROOT, one tablespoonful; sweet milk, half a pint; boiling water, half a pint. To be sweetened with loaf sugar. Excellent aliment for children when the bowels are irritable.

Tapioca Jelly.

TAPIOCA, two tablespoonfuls; water, one pint. Boil gently for an hour, or until it assumes a jelly-like appearance. Add sugar, wine, and nutmeg, with lemon-juice to suit the taste of the patient, and the nature of the case.

Jelly of Irish Moss.

IRISH moss, half an ounce; fresh milk, a pint and a half. Boil down to a pint. Remove any sediment by straining, and add the proper quantity of sugar and lemon juice, or peach-water, to give it an agreeable flavor.

Isinglass Jelly.

ISINGLASS, one roll. Boil in one pint of water until it is dissolved. Strain, and add one pint of sweet milk. Put it again over the fire, and let it just boil up. Sweeten with loaf-sugar, and grate nutmeg upon it. When properly made, it resembles custard.

This forms an excellent diet for persons recovering from sickness, and is well adapted to the bowel-complaints of children.

Apple Water.

CUT two large apples in slices, and pour a quart of boiling water on them. Or, pour the same amount of water on roasted apples. In two or three hours, strain and sweeten slightly.

Milk-Porridge.

WHEAT flour, cornmeal, or oatmeal, two tablespoonfuls; milk, one pint; water, one pint. Mix the flour or meal with cold water, to form a thin paste; put the milk and water over the fire, and when they come to the boiling point, add the paste, carefully stirring.

French Milk-Porridge.

STIR some oatmeal and water together; let the mixture stand to clear, and pour off the water. Then put more water to the meal, stir it well, and let it stand till the next day. Strain through a fine sieve, and boil the water, adding milk while so doing. The proportion of water must be small. With toast, this is a good preparation for weak persons.

Ground-Rice Milk.

BOIL one spoonful of good rice, rubbed down smooth, with a pint and a half of milk, a little cinnamon, lemon peel, and nutmeg. Sweeten when nearly done.

Boiled Flour.

TIE up as tight as possible, in a linen cloth, one pound of flour; and, after frequently dipping it in cold water, dredge the outside with flour till a crust is formed round it, which will prevent the water from soaking into it while boiling. Place it in water and boil it until it becomes a hard, dry mass.

Two or three spoonfuls of this may be grated, and prepared in the same manner as arrow-root gruel, for which it is an excellent substitute.

Vegetable Soup.

TAKE one turnip, one potato, and one onion, let them be sliced and boiled in one quart of water for an hour. Add as much salt as is agreeable, and pour the whole upon a piece of dry toast.

This forms an agreeable substitute for animal food, and may be given when the latter is inadmissible.

Beef-Tea.

LEAN beef, cut into shreds, one pound; water, one quart. Boil for twenty minutes, taking off the scum as it rises. When it grows cold, strain.

Essence of Beef.

LEAN beef sliced. Put a sufficient quantity into a porter-bottle to fill up its body, cork it *loosely*, and place it in a pot of cold water,

attaching the neck, by means of a string, to the handle of the vessel. Boil this for an hour and a half or two hours; then pour off the liquor and skim it.

To this preparation may be added spices, salt, wine, brandy, etc., according to the taste of the patient, and nature of the disease.

Calf's-feet Jelly.

TAKE two calf's feet, and add to them one gallon of water. Boil down to one quart. Strain, and when cold, skim off the fat. Add to this the white of six or eight eggs well beaten, a pint of wine, half a pound of loaf sugar, and the juice of four lemons, and let them be well mixed. Boil the whole for a few minutes, stirring constantly, and then pass it through a flannel strainer.

This forms a very nutritious article of diet for the sick, and for those recovering from disease. The wine may be omitted or added according to choice.

Chicken Water.

TAKE half a chicken, divested of all fat, and break the bones; add to this half a gallon of water, and boil for half an hour. Season with salt.

Suet Ptisan.

SHEEP'S suet, two ounces; milk, one pint; starch, half an ounce. Boil slowly for half an hour. This may be used as a common drink in dysentery.

Rennet Whey.

NEW milk, one quart; rennet, a large spoonful. Heat the milk, and then add the rennet. Boil until the curd separates, which is to be taken off. To many persons, this forms an agreeable nutriment.

Vinegar Whey.

MILK, one pint; vinegar, one tablespoonful. Boil for a few minutes, and separate the curd.

Tartar Whey.

MILK, one quart; cream of tartar, one dessert spoonful. Boil, and separate the curd.

Mustard Whey.

BRUISED mustard-seed, one tablespoonful; milk, one pint. Boil together for a few minutes, and separate the curd.

This has been found a useful drink in dropsy. A teacupful may be taken at a time.

Alum Whey.

ALUM, one teaspoonful ; milk, one pint. Boil together, and strain, to separate the curd.

Orange Whey.

MILK, one pint ; the juice of an orange with a portion of the peel. Boil the milk ; then put the orange to it, and let it stand till coagulation takes place. Strain.

Sweet Whey.

SKIMMED milk, two quarts ; a piece of prepared calf's rennet. Mix and put in a warm place till coagulation takes place ; then strain.

Whey with Tamarinds.

MILK, boiling, one pint ; tamarinds, two ounces. Boil them together till coagulation takes place.

Wine Whey.

MILK, two thirds of a pint ; water, one third of a pint ; Madeira, or other wine, one gill ; sugar, one dessert spoonful. Place the milk and water together in a deep pan on the fire, and at the moment when it begins to boil, pour in the wine and the sugar, stirring assiduously whilst it boils, for twelve or fifteen minutes. Lastly, strain through a sieve. This is excellent in all forms of fever, given in small quantities. It may be drunk either cold or tepid, a wine-glassful at a time.

Milk and Soda Water.

HEAT nearly to boiling a teacupful of milk ; dissolve in it a teaspoonful of refined sugar ; put this into a large tumbler and fill with soda water. This is an excellent mode of taking milk when the stomach is charged with acid, and is oppressed by milk alone.

Sippets.

ON an extremely hot plate, put two or three slices of bread, and pour over them some of the juices of boiled beef, mutton, or veal. If there be no butter in the dish, sprinkle over them a little salt.

Restorative.

TAKE two calf's feet, one quart of water, and one quart of new milk ; place all in a close-covered jar, and bake three hours and a

half. When cold, remove the fat. Any desired flavor may be given, by adding lemon-peel, cinnamon or mace, while baking. Add sugar afterwards.

Coffee-Milk.

BOIL a dessertspoonful of ground coffee in nearly a pint of milk, for a quarter of an hour, then put into it a shaving of isinglass, and clear it. Let it boil a few minutes, and set it beside the fire to clarify. Sweeten with loaf-sugar.

Nutritive Fluid.

TAKE two teaspoonfuls of lump magnesia, one teaspoonful of saleratus, one teaspoonful of salt, two teaspoonfuls of flour, half a pint of milk, and one pint of water. Put the milk and water, united, over the fire, and rub up the flour with a little cold water to make a thin paste. Just when the milk and water begin to boil, stir in the paste. This will make a thin porridge, which should boil about five minutes. At the end of this time remove from the fire and pour into a pitcher. Now add the magnesia, pulverized, and mixed with the saleratus and salt. Sweeten to suit the taste.

This may be drunk freely, several times a day, so as to produce two evacuations of the bowels in twenty-four hours, in those cases of dyspepsia attended by acidity of the stomach, and in many debilitated conditions of the system in which there is a tendency to loss of flesh.

This is one of the leading fluids used by those who pursue what is called the "*Nutritive System*" of treating disease, and is really a valuable preparation, having the effect often to increase the flesh, even while it acts as a cathartic.

Franklin Mills Bread,

OR GERM-WHEAT BREAD.

One quart milk or water; one quart white flour; one-half yeast-cake; one-half cup sugar; one-half teaspoon salt; one quart Franklin flour.

Put the white flour in the mixing-bowl, then add the milk and yeast gradually, until smooth. Cover; let it rise in the bowl all night. In the morning, if light, add sugar, salt and Franklin flour, a little at a time; then let it rise again until light. Fill the pans two-thirds full, and rise. Bake one hour.

Indian-Meal Gruel.

TWO tablespoonfuls of cornmeal to one quart of boiling water; one teaspoonful of salt. Cook about thirty-five minutes. If too thick, thin with milk or cream.

Oatmeal Gruel.

TAKE one quart of boiling water, three tablespoonfuls of oatmeal, one-quarter teaspoon salt; cook two hours, strain and add milk or cream.

Flour Gruel.

TAKE two teaspoonfuls of white flour, one cup of boiling water, one-half teaspoonful of salt. Make a smooth paste of the flour and salt before adding to boiling water. Strain and thin with milk or cream.

Mutton Broth.

BOIL one pound of juicy mutton in two cups of cold water. Cook slowly for half an hour; strain, and after it is cold, remove the fat, and serve with boiled rice. The rice should be boiled separately and added to the broth when it is warming.

Beef Tea.

TAKE one pound of round steak, remove the fat, and cut fine, and place the meat in a self-sealing jar without water; cover closely, heat gradually in a kettle of water, one hour, or until there is no color in the meat. Press with a spoon all the juices from the meat. Serve with salt.

Broiled Beef Essence.

PLACE one pound of round of steak in the broiler and broil until the juice begins to flow. Cut into fine pieces and squeeze the juice, using a lemon squeezer. Salt to taste.

Flaxseed Lemonade

TAKE two tablespoonfuls of whole flaxseed, and pour over it one pint of boiling water. Steep one hour and a half; add the juice of one lemon and sweeten to taste. Excellent for colds.

Clam Broth.

WASH the clams; put in kettle with enough water to cover; boil until shells open, and serve hot.

Egg-Nog.

TAKE one tablespoonful of sugar and the yolk of one egg, and beat together; add one-half cup of milk; beat the white separately, and mix in lightly; add brandy or wine. A little nutmeg is used to flavor.

TO PREPARE and CONCOCT
WINES, TONICS and BEVERAGES
for the CONVALESCENT

Great care should be taken in selecting the best ingredients in
preparing these receipts and over-indulgence
must be avoided.

To Prepare and Concoct Wines, Tonics and Beverages for the Convalescent.



GREAT care should be taken in selecting the best ingredients in preparing these receipts, and overindulgence must be avoided.

Syrups.

ORANGE SYRUP.—Grate off the outside yellow peel of fresh and ripe oranges; cut them and express the juice; to each quart, add 1 pt. water and 6 lbs. sugar, previously well mixed with the grated peel. Dissolve by gentle heat, then strain.

PINE-APPLE SYRUP —Pare and mash the fruit in a marble or porcelain mortar, with a small quantity of sugar; express the juice and for each quart, take $1\frac{1}{2}$ pts. of water and 6 lbs. fine sugar; boil the sugar and water; then add the juice; remove from the fire, skim and strain. Or make it with the essence directed for strawberry.

PEAR SYRUP.—Make as directed for pineapple syrup; or use the essence of pear, by adding to each gallon of simple syrup, 2 teaspoonfuls of essence of pear, and $\frac{1}{4}$ oz. tartaric acid.

BANANA SYRUP.—Make as directed for pineapple syrup, or with the appropriate essence and acid as above.

APPLE SYRUP.—Make as directed for pineapple syrup, or with the appropriate fruit and essences as above.

CREAM SYRUP.—Fresh cream, 1 pt.; fresh milk, 1 pt.; fine powdered sugar, 3 lbs.; beat the sugar with the milk, and the whites of 2 eggs; then mix with the cream. Flavor with lemon, vanilla, or strawberry. Keep in a cool place, well bottled.

SARSAPARILLA SYRUP.—To simple syrup add 10 drops oil of anise; 20 drops oil of wintergreen; 20 drops oil of sassafras, and 6 oz. of caramel or coloring to the gallon. Before the oils are added to the syrup, they should be cut by grinding them in a mortar with as much sugar as they will moisten, or mix with a small quantity of alcohol.

VANILLA SYRUP.—To simple syrup add $\frac{1}{2}$ oz. of ext. of vanilla to the gallon.

GINGER SYRUP.—Bruised Jamaica ginger, 2 oz.; boiling water, 1 pt.; macerate for four hours; add fine white sugar, 2 lbs.; and strain through a fine flannel bag.

STRAWBERRY SYRUP.—Inclose fresh strawberries in a coarse bag, press out the juice, and to each quart add 1 pt. water and 6 lbs. white sugar; dissolve by raising it to the boiling point, and strain; bottle and cork hot, and keep in a cool place.

BLACKBERRY SYRUP.—Is made as directed for strawberry, adding to each quart 1 oz. best French brandy.

WILD CHERRY SYRUP.—Steep 4 oz. wild cherry bark, well bruised in 1 pt. of cold water, for thirty-six hours; press out the infusion; let it stand till clear, decant, and add $1\frac{1}{2}$ lbs. fine white sugar; mix and strain.

Punches.

PUNCH.—To make punch in perfection, the essence of the lemon must be extracted by rubbing lumps of sugar on the rind, which breaks the delicate little vessels that contain the essence, and at the same time absorbs it. In making the hot toddy or hot punch, you must put in the spirits before the water; in cold punch, grog, etc., the other way. The precise portions of spirits and water, or of acidity and sweetness, are hard to define in every case. In these, as well as in other matters, it will often be preferable to consult the taste.

BRANDY PUNCH.—One tablespoonful of raspberry syrup, 2 ditto of white sugar, 1 wine glass water, $1\frac{1}{2}$ ditto of brandy, $\frac{1}{2}$ small sized lemon, 2 slices of orange, 1 piece of pineapple. Fill the tumbler with shaved ice, shake well, and dress the top with berries in season; sip through a straw.

HOT BRANDY AND RUM PUNCH.—One qt. of Jamaica rum, 1 ditto Cognac brandy, 1 lb. loaf sugar, 4 lemons, 3 qts. boiling water, 1 teaspoonful of nutmeg. Rub the sugar over the lemons until it has absorbed all the yellow part of the skins, then put the sugar into a punch bowl; add the ingredients well together, add the rum, brandy. and nutmeg; mix thoroughly and the punch will be ready to serve.

WHISKEY PUNCH.—One wine glass Irish or Scotch whiskey, 2 ditto boiling water, sugar to taste. Dissolve the sugar well with 1 wine glass of water, then pour in the whiskey, and add the balance of the water. Sweeten to taste, and put in a small piece of lemon rind, or a thin slice of lemon.

GIN PUNCH.—One tablespoonful of raspberry syrup, 2 ditto of white sugar, 1 wine glass of water, $1\frac{1}{2}$ ditto of gin, $\frac{1}{2}$ a small-sized lemon, 2 slices of orange, 1 piece of pineapple. Fill the tumbler with shaved ice, shake well, and sip through a glass tube or straw.

CHAMPAGNE PUNCH.—One qt. bottle of wine, $\frac{1}{4}$ lb. sugar, 1 orange

sliced. The juice of a lemon, 3 slices of pineapple, 1 wine glass of raspberry or strawberry syrup. Ornament with fruits in season, and serve in champagne goblets.

RASPBERRY PUNCH.—One and a half gills of raspberry juice, or vinegar, $\frac{3}{4}$ lb. lump sugar, $3\frac{1}{2}$ pints boiling water. Infuse $\frac{1}{2}$ an hour, strain, add $\frac{1}{2}$ pt. of porter, $\frac{3}{4}$ to 1 pint each of rum and brandy (or either $1\frac{1}{2}$ to 2 pints), and add more warm water or sugar, if desired weaker or sweeter.

ROMAN PUNCH.—One tablespoonful of sugar, 1 ditto of raspberry syrup, 1 teaspoonful of Curacoa, 1 wine glass of Jamaica rum, $\frac{1}{2}$ ditto of brandy, juice of $\frac{1}{2}$ a lemon. Fill with shaved ice, shake well, dash with port wine, and sip through a straw.

MILK PUNCH.—One tablespoonful of fine white sugar, 2 ditto of water, 1 wine glass of Cognac brandy, $\frac{1}{2}$ ditto Santa Cruz rum, 1-3 tumblerful of shaved ice, fill with milk. Shake the ingredients well together, and grate a little nutmeg on top. To make it HOT, use *hot* milk and no ice.

SHERRY PUNCH.—Two wine glasses of sherry, 1 tablespoonful of sugar, 2 or 3 slices of orange, 3 ditto of lemon. Fill tumbler with shaved ice, shake well, and sip through a straw.

CLARET PUNCH.—One and a half tablespoonfuls of sugar, 1 slice lemon, 2 or 3 ditto of orange. Fill the tumbler with shaved ice, pour in your claret, shake well, and it is ready for use.

PORT WINE PUNCH.—Is made the same as claret punch, using port wine instead of claret.

ORGEAT PUNCH.—One and a half tablespoonfuls of Orgeat syrup, $1\frac{1}{2}$ wine glasses of brandy, juice of $\frac{1}{2}$ a lemon, and fill the tumbler with shaved ice. Shake well, and dash port wine on the top.

Liquors.

FRENCH BRANDY.—Pure spirits, 1 gal.; best French brandy, or any kind you wish to imitate, 1 qt.; loaf sugar, 2 oz.; sweet spirits of nitre, $\frac{1}{2}$ oz.; a few drops of tincture of catechu, or oak bark to roughen the taste if desired, and color to suit.

COGNAC BRANDY.—To every 10 gals. of pure spirits add 2 qts. New England rum, or 1 qt. Jamaica rum, and from 30 to 40 drops of oil cognac cut in half a pint of alcohol, and color with burnt sugar to suit.

CHERRY BRANDY.—To every 10 gals. of brandy made by the receipt for French brandy, add 3 qts. of wild black cherries, stones and all bruised; crushed sugar, 2 lbs.; let it stand for one week, then draw or rack it off as it is wanted for use. Do not use the bitter almond oil in any case, as it is the rankest poison.

BLACKBERRY BRANDY.—Take 10 gals. of No. 2 brandy, and use 5 qts. nice rich blackberries mashed; macerate the berries in the liquor for ten days. Then strain off; add 3 oz. sugar to each gallon;

if strawberries are used, work the same proportions with only half the quantity of sugar.

OLD RYE.—Take dried peaches, $\frac{1}{2}$ peck; bake, scorch, and roast them in a stove, but don't burn; bruise and put them in a woollen pointed bag, and leach good common whiskey over them twice slowly; this for one barrel; add afterwards 12 drops aqua ammonia to each barrel; and with age you will have whiskey equal to Old Rye.

SCOTCH WHISKEY.—To 46 gals. alcohol, 95°, add 8 gals. best Scotch whiskey; 18 gals. soft water; 3 lbs. clarified honey, dissolved in $1\frac{1}{2}$ gals. soft water, 5 drops creosote, dissolved in 2 oz. strong acetic acid; 1 oz. pelargonic ether; 1 gallon old ale.

IRISH WHISKEY.—To 30 gals. of pure spirit, 10 over proof, add 5 gals. genuine Irish whiskey. $\frac{1}{2}$ gal. old ale; 4 drops creosote mixed in 1 oz. acetic acid, 1 oz. pelargonic acid.

JAMAICA RUM.—To 45 gals. New England rum, add 5 gals. Jamaica rum; 2 oz. butyric ether, $\frac{1}{2}$ oz. oil of caraway, cut with alcohol, 95 per cent. Color with sugar coloring.

SANTA CRUZ RUM.—To 50 gals. pure proof spirit, add 5 gals. Santa Cruz rum; 5 lbs. refined sugar, in $\frac{1}{2}$ gal. water; 3 oz. butyric acid; 2 oz. acetic ether. Color if necessary.

RUM.—Pure spirits, 1 gal., 1 pt. of the kind of rum you wish to imitate. $\frac{1}{8}$ oz. oil of caraway is enough for 6 gallons.

BOURBON WHISKEY.—To 50 gals. pure proof spirit, add 2 oz. pear oil; $\frac{1}{2}$ oz. pelargonic ether; 6 drs. oil of wintergreen, dissolved in the ether, $\frac{1}{2}$ gal. wine vinegar. Color with burnt sugar.

Concoctions.

EGG NOGG.—One tablespoonful of fine sugar dissolved with one tablespoonful of cold water, 1 egg; 1 wine glass of cognac brandy; $\frac{1}{2}$ ditto of Santa Cruz rum, $\frac{1}{2}$ tumblerful of milk. Fill the tumbler quarter full of strained ice, shake the ingredients until they *are thoroughly mixed together*, and grate a little nutmeg on top.

SHERRY EGG NOGG.—One tablespoonful of white sugar, 1 egg, 2 wine glasses of sherry. Dissolve the sugar with a little water, break the yolk of the egg in a large glass, put in quarter tumblerful of broken ice, fill with milk until the egg is thoroughly mixed with the other ingredients, then grate a little nutmeg on top.

MINT JULEP.—One tablespoonful of white pulverized sugar, $2\frac{1}{2}$ ditto water; mix well with a spoon. Take three or four sprigs of fresh mint, press them well in the sugar and water, add $1\frac{1}{2}$ wine glasses of Cognac brandy, and fill the glass with shaved ice, arrange berries and small pieces of sliced orange on top, dash with Jamaica rum, and sprinkle sugar on top. Sip with a glass tube or straw.

BRANDY SMASH.—One-half tablespoonful of white sugar, 1 ditto water, 1 wine glass of brandy. Fill glass two-thirds full of shaved

ice, use 2 sprigs of mint the same as in the receipt for mint julep. Lay 2 small pieces of orange on the top, and ornament with berries in season.

CHAMPAGNE COBBLER.—One tablespoonful of sugar, 1 piece each of orange and lemon peel. Fill the tumbler one-third full of shaved ice, and fill balance with wine; ornament in a tasty manner with berries in season. Sip through a straw.

WHISKEY COBBLER.—Two wine glasses of whiskey, 1 tablespoonful of sugar, 2 or 3 slices of orange. Fill the tumbler with ice, and shake well.

SHERRY COBBLER.—Two wine glasses of sherry, 1 tablespoonful of sugar, 2 or 3 slices of orange. Fill the tumbler with shaved ice, shake well, and sip through a straw.

BRANDY COCKTAIL.—Three or four dashes of gum syrup, 2 ditto Bogart's bitters, 1 wine glass of brandy, 1 or 2 dashes of Curacoa; squeeze lemon peel, fill one-third full of ice, and stir with a spoon.

WHISKEY COCKTAIL.—Three or four dashes of gum syrup, 2 ditto Bogart's bitters, 1 wine glass of whiskey, and a piece of lemon peel. Fill one-third full of ice, shake, and strain in a fancy red wine glass.

GIN COCKTAIL.—Three or four dashes of gum syrup, 2 ditto bitters, 1 wine glass of gin, 1 or 2 dashes of Curacoa, 1 small piece of lemon peel. Fill one-third full of fine ice, shake well, and strain in a glass.

WHISKEY TODDY.—One teaspoonful sugar, $\frac{1}{2}$ wine glass of water, 1 ditto whiskey, 1 small lump of ice. Stir with a spoon.

GIN TODDY.—One teaspoonful of sugar, $\frac{1}{2}$ wine glass of water, 1 ditto gin, 1 small lump of ice. Stir with a spoon.

BRANDY SLING is made same as brandy toddy, except that you grate a little nutmeg on the top.

HOT WHISKEY SLING.—One glass of whiskey; fill tumbler one-third full of boiling water, and grate nutmeg on top.

GIN SLING is made same as gin toddy, except you grate a little nutmeg on top.

BRANDY TODDY.—One teaspoonful of sugar, $\frac{1}{2}$ a wine glass of water, 1 ditto of brandy, 1 small lump of ice. Stir with a spoon. For hot brandy toddy omit the ice and use boiling water.

BRANDY FLIP.—One teaspoonful of sugar, 1 wine glass brandy. Fill the tumbler one-third full of hot water, mix and place a roasted cracker on top, and grate nutmeg over it.

PORT WINE.—Worked cider, 42 gals.; good port wine, 12 gals.; good brandy, 3 gals.; pure spirits, 6 gals.; mix. Elderberries and sloes, and the fruit of the black hawes, make a fine purple color for wines, or use burnt sugar.

AMERICAN CHAMPAGNE.—Good cider (crab-apple cider is the best), 7 gals.; best fourth-proof brandy, 1 qt.; genuine champagne wine, 5 qts.; milk, 1 gal.; bitartrate of potassa, 2 oz. Mix and let stand a short time; bottle while fermenting. An excellent imitation.

CURRANT AND OTHER FRUIT WINES.—To every gallon of expressed

juice, add 2 gals. soft water, 6 lbs. brown sugar, cream tartar, $1\frac{1}{2}$ oz.; and 1 qt. brandy to every 6 gals.; some prefer it without brandy. After fermentation take 4 oz. isinglass dissolved in 1 pt. of the wine, and put to each barrel, which will refine and clear it; when it must be drawn into clean casks, or bottled, which is preferable.

BLACKBERRY WINE.—Mash the berries, and pour 1 qt. of boiling water to each gal. Let the mixture stand 24 hours, stirring occasionally; strain and measure into a keg, adding 2 lbs. sugar, and good rye whiskey 1 pint, or best alcohol $\frac{1}{2}$ pint to each gal. Cork tight and put away for use. The best wine that can be made.

DIETING IN REGARD TO HEALTH.

How to Grow Fat.

It is often as annoying to many to be thin as it is in others to be fleshy. Here again the remedy consists in overcoming the natural or peculiar forces at work predisposing to the paucity of fat accumulation, and first of all to grow fat means for the thin person to grow lazy and good-natured. Worry, cares, much work and short hours for sleep, must be overcome. Clean skins, clean clothes, clean air and plenty of sunshine are the *sine qua non* for thin people to observe.

Little work, long hours of sleep, plenty of rich food well digested, a merry disposition, regular hours for meals, with naps between times are also requisite principles to observe for him who would grow fat.

Drink plenty of water, say one or two glasses of pure water on arising and again on retiring. Do not overload the stomach with water, but drink all it will comfortably stand. Ride in the open air often, enjoy the sunshine and fresh air, and bathe in cool water, especially sea-water when practicable.

It will be found much more difficult for some than for others to observe all these principles, and again much more difficult for some to benefit by them than others; yet everybody can add pounds to their present weight if only they will persevere in all these instructions.

Of the food necessary to avoid, the chief articles are acids, spices, and condiments generally.

Of those most productive of fat are the cereals and starchy food like potatoes, oatmeal, bread, puddings, etc. Again, fatty meats, cream, butter, and milk, chocolate, oils, etc., supply fat directly to the system. Sweets are also conducive to fat formation, like sugar, beets, custards, etc. Sweet wines and porter are likewise fattening.

It must be borne in mind, however, that these very classes of food are often the cause of indigestion, which makes people thin, hence a good appetite and a good digestion are prerequisites for this sort of a dietary. It is often a benefit for those with weak stomachs to eat a little six times a day, say a light breakfast, dinner, and supper, and a glass of milk in the middle of the forenoon and afternoon.

To Reduce Flesh.

CORPULENCE or obesity is generally more annoying to most people than the opposite extreme. It is, however, as natural for some people to be fat as it is for others to be thin.

To reduce flesh, however, is legitimate within certain limits. The functions of the body should not be interfered with nor weakened by any sort of treatment directed to the reduction of flesh. There have always been kept on the market for sale medicines whose sole aim is to render people thinner, but most of them are neither trustworthy nor safe.

Of new medicines the most reliable is *Phytolene*. The thyroid gland of the sheep, taken in five-grain doses on retiring, has quite recently been extolled as a reliable and harmless medicine against obesity. This medicine has been on the market for only a short time, but it is known to be perfectly harmless.

The use of a teaspoonful of phosphate of soda in a glassful of hot water on arising, and a like dose at bedtime if the bowels are not moved too much by the morning dose, is of great assistance if persevered with over several months or so. Together with the abstinence from sugars in any form and the avoidance of potatoes will cause a great reduction in flesh. Lately the writer in four months has caused a patient to reduce the weight from 185 pounds to 150 pounds without any other treatment. No drugs, unless the salt may be classed as one, were given and the comfort and health of the patient has been increased a great deal.

Corpulence.

ALL people are not formed in the same mould, some are as fat as others are lean. This is owing to a number of causes, namely: the easy digestion and absorption of food stuffs; easy dispositions coupled with easy work and nourishing food; the preponderance of fatty, sweet or starchy food in the diet list; a certain hereditary predisposition, etc., etc. The style of one's diet (starchy), and the natural tendency in some to put on fat, have probably more to do with corpulency than any other two factors. This condition oftentimes is so distressing as to amount to disease. The heart walls and sac become so infiltrated with fat as to impede the easy action of the heart-muscle, as to retard slow, deep respirations and render all exertions a labor. One may die quite suddenly of fatty heart. The condition at all events often calls for treatment.

To Reduce Flesh.

THE so-called Banting Treatment consists in the abstinence from all fats, sweets, and starchy food. Banting of England, after having

tried all other procedures, very rationally invented this treatment. Whatever else may be tried, this plan of dieting stands pre-eminently in the foreground, and must be persisted in, either alone or as an adjuvant to other treatments.

The following general rules will serve as a guide in the selection of proper foods:—

Avoid starchy food, sugar and fat, milk, coarse cereals, pork or lard in all its forms.

Can eat:—

Of Soups: Mutton, chicken and clam broths, beef-tea.

Of Fish: All kinds except salt or fatty, like bluefish and mackerel.

Of Meats: The lean of mutton, beef or chicken in small quantities.

Of Vegetables: All kinds but potatoes, turnips and parsnips.

Eggs, bread, cornmeal, etc. All kinds of fruit and berries.

Weak coffee with little sugar or milk, light wines, and the various mineral waters. Poland, Vichy, Londonderry, Hunyadi, etc., can be taken.

Moderate gentle exercise is to be indulged in. The bowels are to be kept loose with some saline aperient each day, like Carlsbad salts.

Recently cases have been reported of marked success in the use of the extract of thyroid glands in tablet form; one each night, at the same time using Garfield Tea. Iodide of potash in ten-grain doses taken in one-half a glass of water three times daily, has been for a long time the favorite remedy in the treatment of this disease. This dose should be increased every third day till twenty grains are taken as a dose. If the mouth tastes very badly in the morning, or pimples on the face or back appear to any very annoying degree, the medicine may be discontinued for a short time, although these symptoms do no harm.

DIETING IN DISEASE.

In Dyspepsia, great care should be taken not to overload the stomach. It is better to eat often, and take smaller quantities at a time, and at regular intervals. Dyspepsia assumes so many different forms that experience should teach each patient what agrees with him best. Regularity is of importance, and in no case should a meal be eaten in a hurry or when the mind is disturbed. It is best to avoid pork in all forms, rich, fatty and highly-seasoned foods or liquors. Plain foods with few condiments are the best. A little warm water or milk taken with the food is better than tea or coffee. Vichy, Apollinaris, or Poland water are good drinks.

The following is usually a safe diet in ordinary dyspepsias:— Plain soups; oysters, raw or roasted; fish, except fatty varieties and blue-skinned fish. Fish should be boiled or broiled. Lobster, blue-fish, mackerel and salmon, are the most difficult of digestion. Meats: mutton, roast or broiled; chicken, beef, sweet-breads, tripe. Eggs can generally be taken. The various vegetables, if well cooked, — with the exception of boiled potatoes. Only stale bread should be eaten. That made from the Franklin Mills flour is the best. The various coarse cereals are good. It is best to avoid puddings and pies. Fruits of different kinds are good, especially apples and grapes. It is beneficial in some cases to drink hot water immediately on rising, and in others cold water, — experience is the best teacher.

Dyspepsia accompanied by much gas and belching of wind is remedied oftentimes by avoidance of starchy food, such as bread, potatoes, etc. Dyspepsia of the small bowel, coming on one or two hours after meals, means less starchy food, and avoidance of heavy vegetables, fruits, cereals, etc.; in other words, the patient should live on an animal diet of meat, eggs, milk, etc.

For Consumptives, and those in an anæmic state, the diet should be generous and easily digested; food should be taken in small quantities and often. It is best to take some light nourishment between meals and before retiring, such as Mellin's Food and milk, malted milk and egg-nog. In consumption, oils and fatty foods are beneficial if they can be digested. Various preparations of cod-liver

oil are excellent. The patient should avoid pork in all forms, fried foods, pies and pastry, and all starchy or sweet foods.

Can take soups and broths, oysters, fish and eggs, if not fried, beef, poultry, game and mutton, — roasted or boiled; fresh vegetables; coarse cereals and stale bread. Desserts: baked apples, prunes, sago, tapioca and custards. Best to avoid strong tea or coffee. Vichy, Poland and ozonized waters, milk. Malted milk and koumiss are good drinks.

In Albuminuria.— Do not eat to excess, or overload the stomach in any way. Eat the most easily digested food, such as plain soups, codfish, haddock, clams and oysters raw. Of meats, chicken and game, avoiding those that have most blood in them. Vegetables of all kinds, especially those of green variety. Laxatives, coarse cereals and stale bread.

Do not take of pastry or rich dishes of any kind, sweets, coffee, tobacco or liquors. *Avoid* eggs and an excess of meats. *Can take* tea, milk, koumiss and large quantities of water, Poland if possible.

For Gouty and Rheumatic People a generous diet is best. They should *avoid* all foods that have a tendency to acidity of the stomach, such as those of a starchy or sweet nature.

Can take plain soups, broths, beef-tea, fish, — except fatty kinds, — and oysters; meats, with the exception of pork, in small quantities; fresh vegetables, — onions, cauliflower, celery, lettuce, spinach, peas and baked potatoes. Also various coarse foods and stale bread.

For desserts *avoid* all rich puddings and pastry and sweets. Can eat baked or stewed fruits, lemons, oranges and baked apples.

Should drink plenty of water and milk, rather than tea or coffee. Vichy, Poland and Lithia water are the best.

For Diabetes. — Take easily-digested food, avoiding as much as possible sweet and starchy varieties. Avoid the use of sugar altogether, and substitute saccharin, both in the preparation of foods and for tea and coffee. Use meats, fats, oils and butter, cream and water especially, say one pint of cream daily. Use few or no potatoes, and those baked. *May eat* all kinds of soup, and various shell-fish; fat meats and fresh vegetables that are not starchy. Various fruits, nuts, gluten bread, etc. Saja-bean meal contains only one per cent of starch, and is very well adapted to diabetes, — much better than the ordinary gluten flour, which, after all, is somewhat starchy.

For beverages: weak tea or coffee without cream or sugar, milk, koumiss, ales and various mineral waters. It is well to avoid flours, coarse cereals, fruits and vegetables.

BATHING,

WITH ESPECIAL REFERENCE TO THE TURKISH AND RUSSIAN BATHS
AND THEIR USE AT HOME.

BATHING, as practised both for pleasure and cleanliness, has been the instinctive custom of every nation. Records date to the bathing in the Nile and Ganges. Jews, Greeks, Egyptians, and Assyrians were all lovers of the bath.

The Romans surpassed all others in the variety and luxury of their baths, but to an excess of them may be ascribed much of the final effeminacy and physical degeneration of the Roman people.

The Roman bather first entered the warm-air room or "tepidarium," where he sweated with his clothes on; here he was anointed, after which he passed into the "calidarium" or hot room, in one end of which was a bath; here he sweated more freely, and afterwards had plenty of cold water thrown over him from above his head: first warm, then tepid, and after, cold. Succeeding the bath, he was scraped and rubbed most briskly and again anointed. The popularity of these baths caused structures to be erected in every part of the city, and in a style of architecture which surpassed all other art buildings. The immensity of these buildings may be imagined from the fact that ruins of the baths of Titus and Caracalla extend one-fourth mile on each side, while one room of the bath of Diocletian has been converted into a church of imposing proportions. The baths of Diocletian contained 3,200 seats for bathers. To such a pitch of luxury did the Romans reach in their bath-houses, that Seneca said they were dissatisfied unless they trod on gems in their bath. These structures finally were also equipped for all literary pursuits, for sports and games.

These facts show how a simple custom of bathing became a national system of luxurious living. The Roman hour for bathing was one o'clock (before dinner), as it was supposed to promote the appetite, as it does. But these baths which gave such invigoration to the body, and which were synonyms of the highest art and culture, finally were one great means of Roman degeneracy.

To such excess did they carry their hot baths, that the nation finally exchanged its manly vigor for Eastern effeminacy. Un-

bounded license in social evils took the place of gymnastic training and philosophical study. I mention these facts at length to show how bathing may be a most healthful practice and a most injurious custom. Modern baths are more or less the outcome of the old Roman bath, through the agency of the Mahometans, Turks, Russians, and Crusaders. The Turkish bath is a modified Roman bath, while the Russian bath, so far as its vapor is concerned, was practiced among the Indians.

The Russian bath is essentially a vapor bath. In the centre of the building is an open space where one undresses. Around this space are doors opening into small rooms filled with vapor. In the centre of each room is a series of steps leading nearly to the ceiling. The bather lies on the lowest one of these steps and gradually ascends to higher and hotter ones. The first sensation is that of suffocation, the breathing is difficult, but soon perspiration bursts through the pores and breathing is easy and agreeable. These steps vary in heat from 96° to 110° F., and in olden times the temperature ranged very much higher than this. Bath attendants then flog the bather with birchen twigs or coarse towels, lather well with soap, and rinsing the latter off, the bather is rubbed down and put under a shower bath of ice-cold water. The shock is great, but the sensation is pleasant after a few moments. In olden times the bather was made to rush out, steaming hot, and roll in the snow. Milder customs, of course, prevail to-day, yet the Russian bath is not to be indulged in by all people at all times with impunity. When there is any tendency to heart disease, palpitation, vertigo, or fulness of the head, the vapor bath should be indulged in with caution or not at all.

The Turkish bath differs from the Russian bath in that the atmosphere is dry. The bather first enters the "frigidarium," or cooling room, where he undresses and passes into the "tepidarium," or warm room, the temperature of which ranges from 110° to 140° F. The object of this room is to bring on a gentle perspiration, and to prepare the system for exposure to a still higher temperature. This is attained in the "calidarium," the temperature of which varies from 140° to 200° F. In this room the bather undergoes the operation of kneading or shampooing. To get the full benefit of this bath this process should never be omitted; the hands alone being the sole means of friction. After sweating, shampooing, and soaping, the bather passes into the "lavatorium" or wash room. In this room he begins with a warm shower-bath, which is gradually changed to cool, and then to cold. This not only washes off perspiration and soap, but also closes the pores and causes a vigorous reaction.

The feeblest people react readily. The bather then returns to the cooling-room, where he lounges, wrapped in a sheet, to await the secondary perspiration.

The Turkish bath is one of the most invigorating and refreshing institutions we have. It is devoid of danger almost to all, if used

in moderation. Very hot-air rooms, as well as very hot baths, are unnecessary and dangerous to many, as the heart begins to labor and the blood-vessels rapidly dilate.

Fear is often expressed about passing from the hot-air room to the cold-water bath. There is absolutely no danger in passing into cold water while in a state of profuse perspiration. Adverse changes are brought about through the nervous system of the skin; when this is elevated above the normal condition, cold water causes no shock; but when the power of the nervous system is depressed by being chilled, weary, or by disease, then it is that ill results are apt to ensue.

Precautions must always be taken in indulging in any bath. Never take a bath on a hungry stomach, as did the Romans, nor immediately



FIG. 195. METHOD OF TAKING A VAPOR-BATH.

after meals; no more should a bath be taken when one is very weary or exhausted.

Warm baths simply relax and cleanse; but after all others, whether hot air, vapor, or sea bath, a good glow of the skin should follow.

Elderly people should use tepid baths and mild Turkish baths; cold bathing chills the skin and depresses the nervous system. Cold sponge-bathing is a useful adjunct to other health measures in the young and middle-aged, often being the best preventive against catching cold.

The duration of a bath may last from fifteen minutes to two hours. Too much bathing, especially with soap, deteriorates the skin by depriving it of its oily matters. The continued sweating of many water-cures causes bad eruptions and boils, which are difficult of cure. These "humors," so called by many hydropathists, are not evidences that bad blood thus escapes from the body, but that the system has

been much debilitated by too frequent bathing, or too prolonged sweating. Parts exposed like the face and hands must be frequently scraped and bathed, while the rest of the body needs soap and bath much less frequently.

Sea-bathing should not be indulged in by the very old or young; by those whose circulation is languid; by persons who have head disease, chronic lung disorders, brain trouble or local congestions.

A full reaction and a good glow must ensue, and not much time spent in the water. Don't cool off before plunging in the water; all the body warmth is needed for a full reaction; no hesitancy should be harbored about plunging in at once, as less heat is thus lost from the body, and the consequent shock to the nervous system is thereby much diminished.

For home use both the Turkish and Russian bath may be much simplified.

The vapor for the Russian bath may be improvised as follows: The person sits on an open-work chair, preferably a stool made for

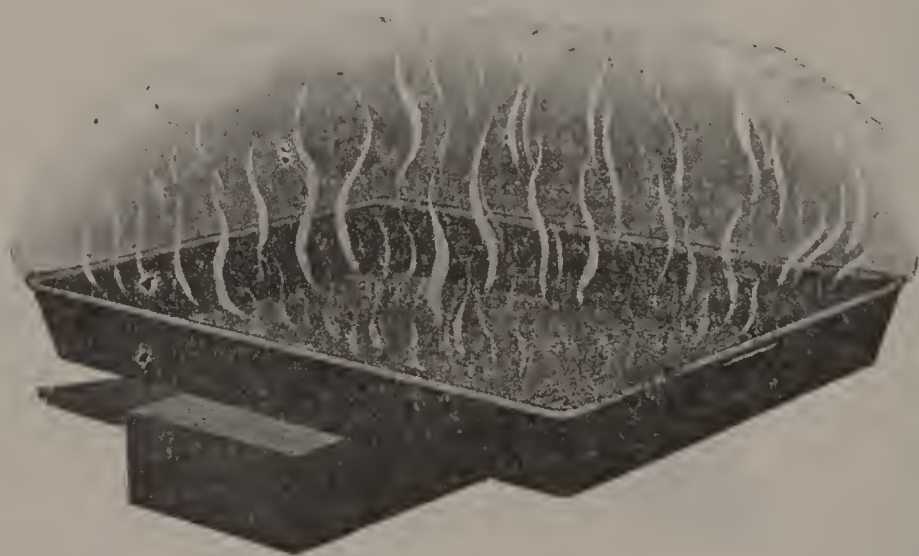


FIG. 196.

the purpose, and is surrounded by a water-proof sheet fitting closely about the neck. Hot water is then poured over heated bricks placed underneath the chair. For more prolonged steaming, a hose may be run to the top of a boiler, on the stove, from whose tin cover projects a tin pipe, to which the hose may be attached. (Fig. 195.)

The shampooing and soaping and cold douche may then be taken.

For Turkish bath, hot air may be obtained by burning an alcohol-lamp under the chair and using the covering mentioned above, or alcohol may be mixed with salt in a pan. (Fig. 196.)

The shampooing and kneading of the muscles should be done by an assistant. Rubber tubing attached to the hot and cold-water faucets of the bath-room will readily furnish the requisite shower-bath of warm, tepid, and cold water, as one or both of the rubber tubings are used. The essential features of both baths may thus very easily be procured by almost every household.

PROOFS OF DEATH.

THE universal dread of being buried alive leads us to give an epitomized account of the various signs of death.

Absence of Circulation. — The heart cannot be heard pulsating by one trained to the proper use of the stethoscope. If a band be tied around a toe or finger no change results; but if the circulation still exists, after a few minutes a livid hue will be noticed at the end of the member.

Absence of Respiration. — A cold mirror placed against or close to the lips does not detect the presence of moisture. A flake of fine cotton or a feather similarly placed reveals no motion imparted by exhaled air.

Cooling of the Body. — After death the body temperature falls rapidly to that of the surrounding media. As a rule the corpse becomes cold in from six to twelve hours after death, the viscera, however, requiring much longer time.

Rigor Mortis. — Post-mortem rigidity is one of the most positive signs of death, and seldom occurs later than twenty-four hours after death.

Putrefaction is, of course, absolute proof of death, but it does not occur early. The abdomen becomes green, and finally the whole body assumes this livid green color, with a sickish, putrid odor. These are the chief signs of death, although several minor ones might be mentioned. It may be said in general, that burial almost never takes place until death is sure. The evidences of apparently suspended animation, of the body turning in its casket, etc., may be explained otherwise.

The Home Administration of Medicines.



WE wish to make clear to our readers three most important facts:

First. That with due care and necessary information that this book will give, many ailments may be avoided without the use of medicines.

Second. That with a clear understanding of anatomy, hygiene, and symptoms of diseases, many things can be done for the relief of the patient until the arrival of the physician.

Third. That in a large majority of cases, with the knowledge that this book imparts, a physician's services will not be needed at all if the readers will make themselves thoroughly acquainted with the instructions given, and in a faithful and intelligent manner carry them out. But it must be borne in mind that in many cases the services of a physician are indispensable, and unless the reader, by following the symptoms here given, is able to correctly diagnose the ailment, and if a marked improvement is not noticed in the patient from the remedies given, no time should be lost in calling a physician.

Fourth. The instructions given in the chapter "The Domestic Management of the Sick Room," if followed carefully, will in most cases do away with the expense of a professional nurse.

MEDICINES AND THEIR PREPARATIONS

Medicine is divided into three classes

ANIMAL, VEGETABLE and MINERAL

of which the "Vegetable Kingdom" furnishes
by far the most and best.

We give in the following chapters over

700 VARIETIES

of

HERBS, PLANTS AND ROOTS

How and where to gather them: their compound and use for
home treatment.

MEDICINES AND THEIR PREPARATIONS.

Materia Medica.

THAT department of medicine which treats of remedies, their doses, modes of using, and influence upon the constitution, is called *materia medica*. The agents employed in the treatment of disease are taken from three kingdoms of nature, — the vegetable, the animal, and the mineral.

The largest portion of medicinal substances are taken from the vegetable world. They consist of leaves, flowers, seeds, barks, and roots. These lose much or all of their medicinal powers unless gathered at the right seasons of the year, and are properly cured. The different parts of a plant are to be gathered when their peculiar juices are most abundant in them.

The Roots of Annual Plants are best supplied with their juices before they are in flower; they should be gathered at this time.

The Roots of Biennial Plants should be gathered in the autumn, after the first year's growth.

The Roots of Perennial Plants should be gathered in the spring, before vegetation has begun.

Before they are dried, the solid parts of these roots are to be cut in slices, after being washed, and the small fibres, unless they are the parts used, are to be thrown away.

Bulbous Roots are to be gathered at the time their leaves decay. Their outer covering being rejected, they must be sliced, strung upon threads, and hung in a warm, airy room to dry. After being dried, roots should be packed in barrels or boxes, and kept as free as possible from moisture.

Barks, whether of the roots, trunk, or branches, must be gathered in autumn, or early in the spring, when they peel off most easily, and, the dead outside and all rotten parts being separated, they must be dried in the same manner as roots. The most active barks are generally from young trees.

Leaves are to be gathered when they are full grown, and just before the fading of the flower.

Those of biennial plants are not to be collected until the second year. For drying, they should be thinly spread on the floor of a

room through which a current of air passes. For preservation, they should be packed in vessels, and kept free from moisture and insects.

Flowers must generally be collected about the time of their opening, — either a little before or just after.

They should be dried as rapidly as possible, but not in the sun, and may be packed away in the same manner as leaves.

Fruits, Berries, etc., may be spread thinly upon the floor, or hung up in bunches to dry.

Articles to Accompany a Medicine-Chest.

It is advisable for families who prepare their own medicines to supply themselves with scales and graduated glasses, as the medicines in this book are prescribed in this way. Still, in many instances, measuring with spoons will answer.

The following articles should be kept in the medicine-chest: —

1. A spatula for mixing ointments and pills, and for spreading plasters.
2. A piece of smooth marble on which the above articles may be mixed, divided, and spread.
3. A glass funnel.
4. A domestic syringe for injection.
5. Adhesive or sticking plaster.
6. Lint.
7. Scales and weights.
8. A glass or wedgewood mortar and pestle.
9. A graduated wineglass for measuring teaspoonfuls and table-spoonfuls of liquids.
10. A graduated minim measure.
11. A two-ounce graduated measure.

3 Dram Minims

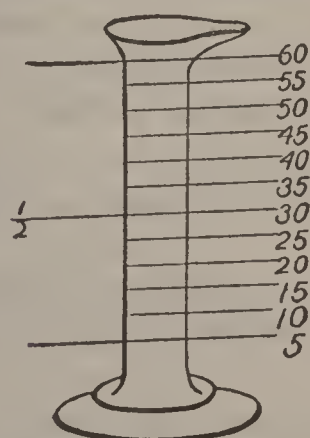


FIG. 195. MINIM MEASURE.

3 Ounce 3 Dram

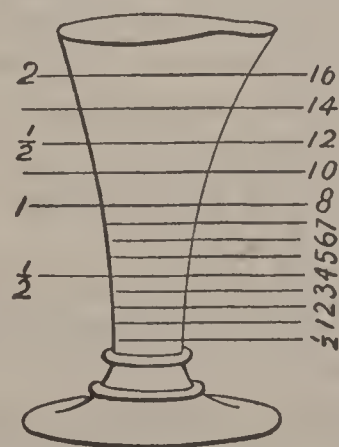


FIG. 196. TWO-OUNCE MEASURE.

The minim measure is represented by Fig. 195, and contains one fluid dram, or sixty minims, which is divided by twelve lines, — each line representing five minims. A minim is considered about equal to one and a half drops.

The two-ounce measure is represented by Fig. 196, and is divided off from half a dram upward.

Doses, Weights, etc.

APOTHECARY'S weights, by which all medicinal preparations ought to be weighed, are divided into pounds, ounces, scruples, drams, and grains.

The characters marked on weights and graduated measures are explained as follows:—

$\mathfrak{z}\text{j}$ one ounce.	$\text{f}\mathfrak{z}\text{j}$ one fluid dram.
$\text{f}\mathfrak{z}\text{j}$ one fluid ounce.	$\mathfrak{z}\text{ss}$ half a dram.
$\mathfrak{z}\text{ss}$ half an ounce.	$\mathfrak{D}\text{j}$ one scruple.
$\mathfrak{z}\text{j}$ one dram.	$\mathfrak{D}\text{ss}$ half a scruple.

The grain weights are stamped with punch-marks.

20 grains make one scruple.	60 drops make one fluid dram.
3 scruples make one dram.	8 drams make one fluid ounce.
8 drams make one ounce.	16 ounces make one pint.

By apothecary's weight:—

lb The pound is equal to 12 ounces.	\mathfrak{z} The dram is equal to 3 scruples.
\mathfrak{z} The ounce is equal to 8 drams.	\mathfrak{D} The scruple is equal to 20 grains.

By apothecary's measure:—

O The pint is equal to sixteen ounces.
\mathfrak{z} The dram is equal to ninety drops, or sixty minims.

The marks and words used by physicians and apothecaries may be a little more fully explained by the following table:—

- \mathcal{R} stands for *recipe*, and means *take*.
- $\bar{a}\bar{a}$ stand for *ana*, and mean *of each*.
- lb stands for *libra vel libræ*, and means a pound or pounds.
- \mathfrak{z} stands for *uncia vel unciz*, and means an ounce or ounces.
- \mathfrak{z} stands for *drachma vel drachmæ*, and means a dram or drams.
- \mathfrak{D} stands for *scrupulus vel scrupuli*, and means a scruple or scruples.
- O stands for *octarius vel octarii*, and means a pint or pints.
- $\text{f}\mathfrak{z}$ stands for *fluiduncia vel fluidunciz*, and means a fluid ounce or fluid ounces.
- $\text{f}\mathfrak{z}$ stands for *fluidrachma vel fluidrachmæ*, and means a fluid dram or fluid drams.
- m stands for *minimum vel minima*, and means a minim or minims.
- Chart.* stands for *chartula vel chartulæ*, and means a small paper or papers.
- Coch.* stands for *cochlear vel cochlearia*, and means a spoonful or spoonfuls.
- Collyr.* stands for *collyrium*, and means an eye-water.
- Cong.* stands for *conguis vel conguui*, and means a gallon or gallons.
- Decoct.* stands for *decoctum*, and means a decoction.
- Ft.* stands for *fiat* and means *make*.
- Garg.* stands for *gargarysma*, and means a gargle.
- Gr.* stands for *granum vel grana*, and means a grain or grains.
- Gtt.* stands for *gutta vel guttæ*, and means a drop or drops.

Haust. stands for *haustus*, and means a draught.

Infus. stands for *infusum*, and means an infusion.

M. stands for *misce*, and means mix.

Mass. stands for *massa*, and means a mass.

Mist. stands for *mistura*, and means a mixture.

Pil. stands for *pilula vel pilulæ*, and means a pill or pills.

Pulv. stands for *pulves vel pulveres*, and means a powder or powders.

Q. S. stands for *quantum sufficit*, and means a sufficient quantity.

S. stands for *signa*, and means write.

Ss. stands for *semis*, and means a half.

Domestic, or Approximate Measures. — A tablespoon contains about four drams; a teaspoon, one dram; a dessertspoon, three drams; a wineglass, two ounces. Spoons vary so much in size, that they should not be used as measures in giving powerful medicines.

Spoons can also be used for measuring solid substances, but are not as accurate, as the solid substances vary very much in weight, so that I would not advise their use in measuring powerful drugs.

One dram, or 60 grains, to a teaspoonful.

Four drams, or half an ounce, to a tablespoonful.

The spoon should be level full for solids.

The Approximate Value of French Decimal Weights.

One centigramme is equal to	$\frac{1}{4}$ grain.
Two centigrammes “	$\frac{1}{2}$ grain.
One demi-decigramme “	1 grain.
One decigramme “	2 grains.
One gramme “	18 grains.
One gramme and three decigrammes is equal to	1 scruple.
Two grammes “	$\frac{1}{2}$ dram.
Four grammes “	1 dram.
One decagramme is equal to	2 drams and 36 grains.
Three decagrammes and two grammes is equal to	1 ounce.
Demi-kilogramme “	1 pound.
Kilogramme “	2 pounds.

The following table shows the relative doses for young people of different ages : —

The dose for a person of middle age being	1 or 1 dram.
That of a person from 14 to 21 years will be	$\frac{2}{3}$ or 2 scruples.
“ “ “ 7 to 14 “ “	$\frac{1}{3}$ or $\frac{1}{2}$ dram.
“ “ “ 4 to 7 “ “	$\frac{1}{3}$ or 1 scruple.
“ “ “ 4 “ “	$\frac{1}{4}$ or 15 grains.
“ “ “ 3 “ “	$\frac{1}{6}$ or 10 grains.
“ “ “ 2 “ “	$\frac{1}{8}$ or 8 grains.
“ “ “ 1 “ “	$\frac{1}{12}$ or 5 grains.

In administering medicines, it is always well to begin with the

smallest dose mentioned and gradually increase until the desired influence is produced.

The dose given should not only vary with the drug, but also with the condition, age and sex of the person.

In giving medicine to children, care should be taken as to the amount administered. (See foregoing table.)

It is of course necessary in all cases that the strength and condition of the patient should be taken into consideration. Especially where powerful drugs are used, it will be better to give smaller doses than mentioned in the table.

Tinctures.

THE preparations called tinctures are made by grinding or bruising the roots, leaves, or barks used, to a coarse powder, placing it in the proper amount of either alcohol or diluted alcohol, letting it stand from seven to fourteen days, — shaking each day, — and, finally, filtering through paper. A large proportion of tinctures are made by taking *one ounce* of the medicinal substance to *one pint* of the spirit; and whenever tinctures are spoken of in this *Materia Medica*, and the quantities are not named, the above proportions are to be presumed. When a larger proportion of the medicine is to be used, I shall simply indicate the proportions in the fewest words, as under Black Cohosh, — “this tincture, four ounces to the pint of alcohol,” meaning thereby, that the tincture is made by using four ounces of the root to the pint of alcohol. Most fluid extracts have the same strength, ounce for ounce, with the roots, barks, leaves, etc., of which they are made. Tinctures may therefore be made with very little trouble, by substituting, in each case, the same number of ounces of their fluid extracts to the pint of alcohol, which I name of the gross substance, or, when no quantity is named, *one ounce* to the pint.

Infusions.

THESE doses are for adults : —

For young people from 15 to 21,	give $\frac{2}{3}$ of dose.
“ children “ 7 to 15,	“ $\frac{1}{2}$ “
“ infants,	“ $\frac{1}{3}$ “

In administering medicines of all kinds the strength and condition of the patient should be taken into consideration.

Infusions are solutions of vegetable medicines, generally obtained by pouring boiling water upon the substance, and letting it stand till it cools. When a more prolonged application of heat is desired, the vessel may stand for a while by the fire, but must not be permitted to boil. The vessel should usually be covered.

As in the case of tinctures, I have uniformly, while writing this *Materia Medica*, briefly named the quantity to be used to the pint whenever it *varies* from *one ounce*.

Acetic Acid. — This is a clear liquid, without color, and has a strong, sour taste, and an agreeable smell. When held to the nose, its fine, pungent odor often relieves headache. A piece of cambric wetted with it and applied to the skin, excites heat and redness, and, very soon, a blister, — for which this acid may be substituted in inflammatory sore throat, and other cases requiring speedy action. Applied to corns and warts, with a camel's-hair brush, it destroys them.

Citric Acid. — This acid is extracted from lemon or lime juice; it is also present in the cranberry, currant, strawberry, raspberry, tamarind, and is very abundant in the red elderberry. It is refrigerant and antiseptic, and is chiefly employed as a substitute for lemonade. Nine and a half drams of the crystals, two drops of oil of lemon, and one pint of water, answers a good purpose in place of lemon-juice.

Diluted Nitric Acid. — This, in the undiluted state, passes under the name of aqua-fortis. It is tonic and antiseptic. Largely diluted with water, it forms a good drink in fevers, especially typhus. Taken in large doses, it is a powerful poison. One-half dram of this preparation, thirteen ounces of soft water, and one ounce of simple syrup, make a good drink in fevers, of which half a wineglassful is a dose. Excellent in cases of whooping-cough. Use with care.

Nitro-Muriatic Acid. — This acid, when properly diluted, has a tonic and stimulant influence. It is much used as a foot-bath in affections of the liver, and in deficient secretions of the bile.

Diluted Hydrochloric Acid. — This is known by the name of diluted muriatic acid. It is tonic, antiseptic, and diuretic, and is used in typhus, eruptions of the skin, and with other articles, as a gargle in inflammatory and putrid sore throats. Dose, from five to twenty drops, in a wineglassful of water. It is given in scarlet and typhoid fevers, about ten drops being put into a bowl of barley-water or gruel.

Diluted Hydrocyanic Acid. — This is commonly known by the name of prussic acid. It is sedative and antispasmodic, and is useful in spasmodic coughs, asthma, whooping cough, nervous affections, hiccough, palpitation of the heart, irritable stomach, and dyspepsia. Dose, from two to five drops, in a glass of water or tea of Peruvian bark. It is an active poison, and should only be taken when prescribed by a physician.

Diluted Sulphuric Acid. — This acid, known by the name of diluted oil of vitriol, is tonic, antiseptic, refrigerant, and astringent. It is useful in dyspepsia, diabetes, menorrhagia, hæmoptysis, eruptions of the skin, hectic, and diarrhœa. It is often given with some bitter infusions, as cascarilla, colombo, Peruvian bark, or quassia. The aromatic sulphuric acid is often used in place of it, being some-

times considered more grateful to the taste. Dose of each, from five to ten drops.

Tannic Acid. — This is an astringent preparation, and passes under the name of tannin. It is prepared from galls. It is used in diarrhœa, dysentery, passive hemorrhages, and diabetes. Dose of the powder, from one to three grains.

Tartaric Acid. — This is refrigerant and antiseptic, and is used in inflammatory affections, fevers and scurvy. It is much used in preparing what is called lemon syrup, and forms an agreeable and healthful drink.

Alcohol. — Alcohol is the result of the fermentation of the juices of many vegetables. It is the intoxicating constituent in whiskey, rum, brandy, gin, wines, porter, ale, beer, and cider. Its principal use in medicine is in the preparation of tinctures, essences, and extracts. One part of pure alcohol to one part of water forms the diluted alcohol of the shops.

Almonds. — The *Amygdalus communis*, or almond tree, grows in the south of Europe and Asia, and yields the sweet and bitter almond. The oil of the sweet almond is used as a demulcent, in coughs, etc. A dose is a teaspoonful. The oil of the bitter almond is poisonous, and is occasionally used as a valuable sedative. Its taste is like that of a peach-kernel. Dose, one-quarter of a drop. It owes its poisonous properties to hydrocyanic acid. Cakes, etc., are sometimes flavored with an essence prepared from it. Do not confound the sweet with the bitter.

Aloes. — This is the hardened juice of the leaves of several species of the aloe-tree, in North and South Africa, in the south of Europe, and in the island of Socotra. Aloes is purgative, acting chiefly upon the rectum, or lower bowel, in which it frequently produces irritation, and is apt to aggravate and induce piles. It is much used to excite the flow of the menses, and should never be given to women during pregnancy. It produces griping of the bowels, which may be diminished by combining it with carbonate of potash.

Alum (*Alumen*). — The chemical name of this is sulphate of alumina and potassa. In ordinary doses, alum is astringent and antispasmodic. In large doses, it is purgative and emetic, and is used both externally and internally. It is often used in solution as a gargle in sore throat, and falling down of the uvula, and as an injection in leucorrhœa. In doses of twenty or thirty grains, it acts as a purgative, and used in this way is useful in painter's colic. When exposed to heat in a vessel till it ceases to boil, it becomes dry, and is then called burnt alum, which, when pulverized, is applied with advantage to canker spots in the mouth, and to proud flesh.

American Hellebore (*Veratrum Viride*). — This plant grows in many parts of the United States, usually in swamps, wet meadows.



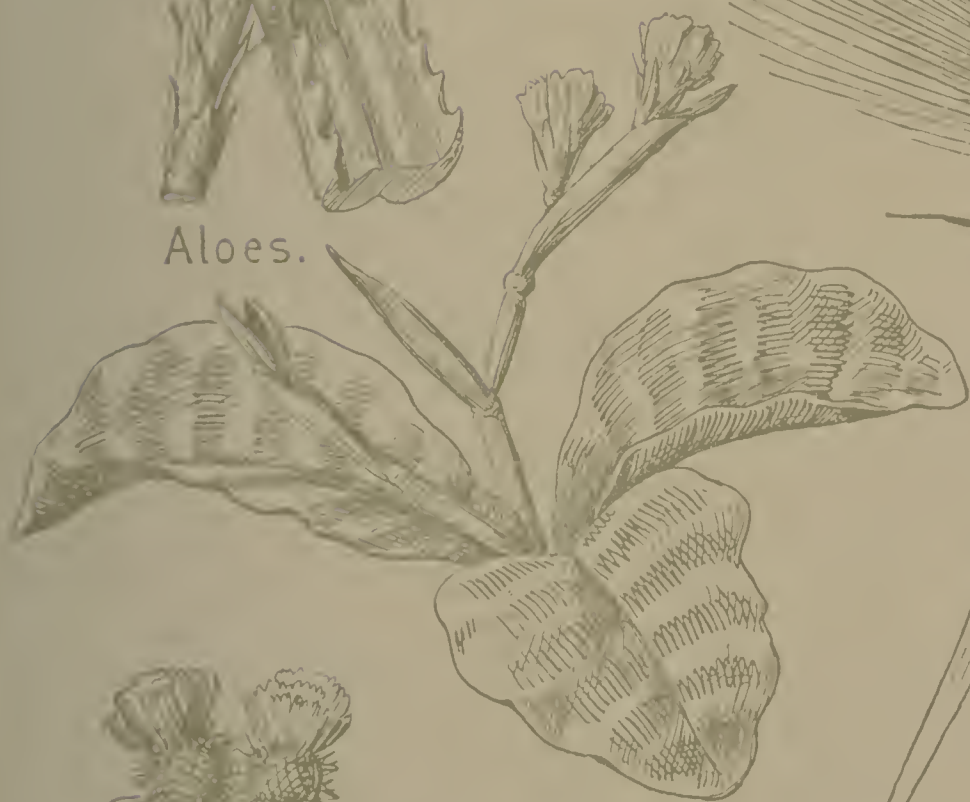
Aloes.



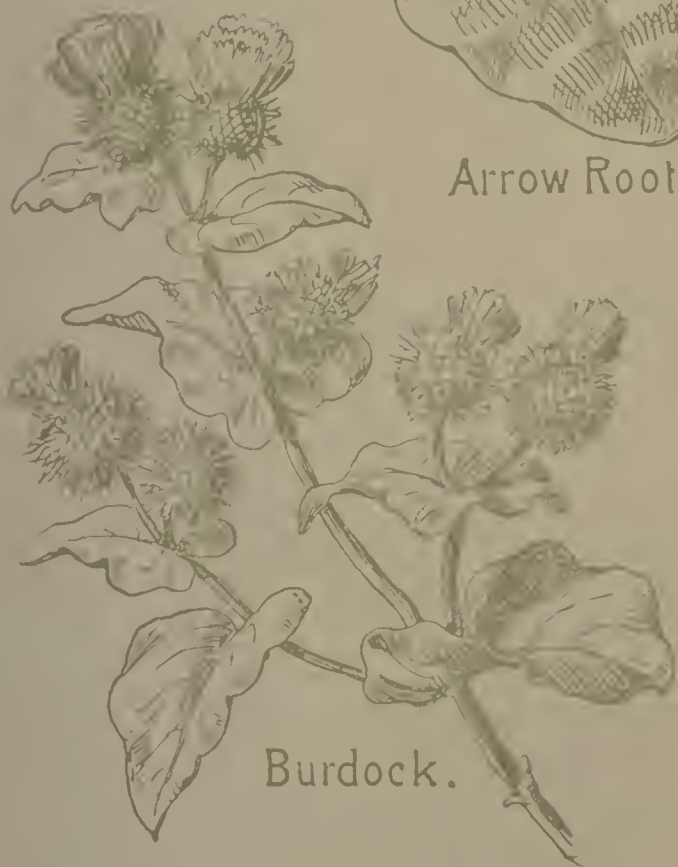
Barley.



Arnica.



Arrow Root.



Burdock.



Balm Mint.



Bitler Sweet



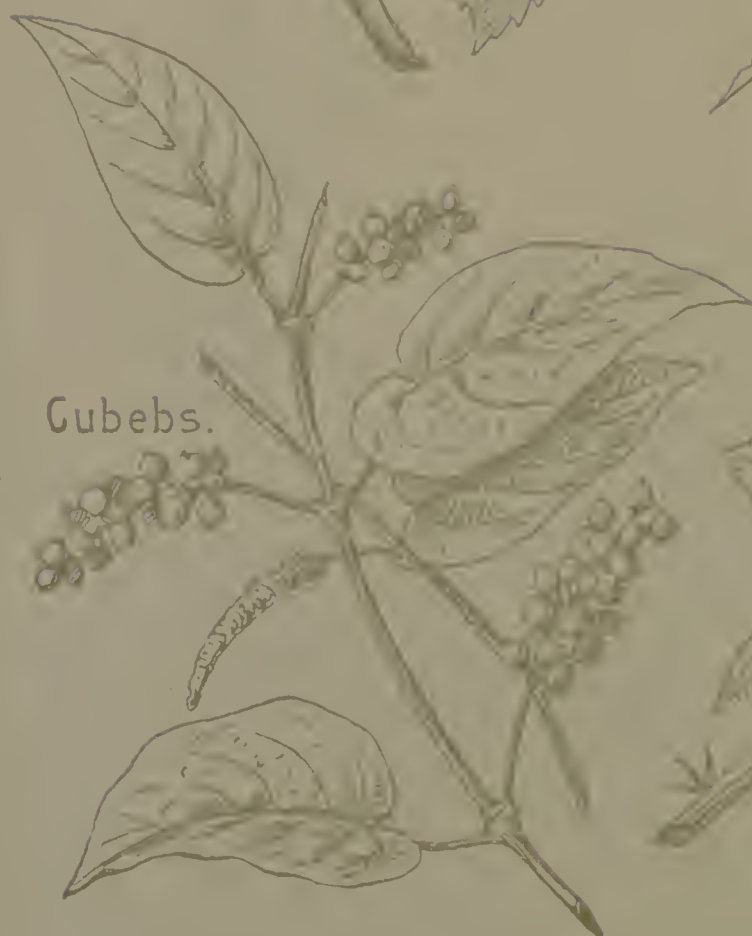
Chicory.



Buckthorn



Castor Oil.



Cubebs.



Barberry.

and on the banks of mountain streamlets. The root is the part used. It is slightly acrid, alterative in a marked degree, very decidedly and actively expectorant and diaphoretic, and it is an excellent nervine, though not narcotic. But its most marked and valuable quality — that in which it has no rival — is its sedative action upon the circulation. In suitable doses, it can be relied upon to bring the pulse down from a hundred and fifty beats in a minute to forty, or even to thirty. In fevers, therefore, in some diseases of the heart, in acute rheumatism, and in many other conditions which involve an excited state of the circulation, it is an article of exceedingly great value, because it is always reliable. Use under physician's directions only.

Preparations. — Veratum is used chiefly in the form of tincture, six ounces to the pint of diluted alcohol, or of fluid extract. The dose of each of these preparations, for a grown person, is two or three drops every hour or two, in a little sweetened water, and gradually increased, if necessary, till the pulse comes down to sixty or seventy. If taken in so large a dose as to produce vomiting, or too much depression, a dose of morphine or laudanum in a little brandy or ginger, is a complete antidote.

Veratrin, the active principle of veratrum, is also used, in doses of one-fourth to one-third of a grain.

American Ipecacuanha (*Euphorbia Ipecac*). — This plant is perennial and grows in sandy soils in the Middle and Southern States. When cut or broken it gives out a milky juice. The root is the medicinal part. It is emetic, cathartic, and diaphoretic. Dose, as a cathartic, eight or ten grains; as a diaphoretic, three or four grains, every three or four hours.

American Ivy (*Ampelopsis Quinquefolia*). — This vine grows in all parts of the United States. It is known by the names of *false grape* and *wild woodbine*. It is alterative, tonic, astringent, and expectorant. Used in scrofula and syphilis.

Water of Ammonia (*Liquor Ammoniac*). — This preparation, called hartshorn, or spirits of hartshorn, is formed by the union of water with ammonia gas. It has a powerful ammoniacal odor, and an alkaline, caustic taste. Taken internally it is stimulant, sudorific, and antacid, and applied externally, it is rubefacient. It stimulates particularly the heart and arteries, without very much exciting the brain. It is an excellent remedy in heartburn, and for sick headache dependent on sourness of the stomach. A dose is from ten to twenty drops, largely diluted with water. United with oils, or with alcohol in about equal proportions, and applied externally, it reddens the skin, and, if the cloth wet with it be covered with oiled silk or with flannel, to prevent evaporation, it will sometimes quickly raise a blister. In cases of fainting, it is frequently applied to the nostrils, to excite the brain, and rouse the system. Aromatic spirit of ammonia is a better preparation.

Carbonate of Ammonia. — This is a white, moderately hard, crystalline salt, having a pungent, ammoniacal smell, and a sharp, penetrating taste. When exposed to the air, it loses some of its ammonia, becomes a bicarbonate, and falls to powder. It is stimulant, diaphoretic, antispasmodic, powerfully antacid, and, in large doses, emetic. Internally, it is more often used than water of ammonia, and for similar purposes. Coarsely bruised, and scented with oil of lavender, it constitutes the common smelling salts, so much used in fainting and hysterics. For internal use, the dose is from five to ten grains, taken in the form of pills, every two, three or four hours.

Muriate of Ammonia (*Sal Ammoniac.*) — This, also called hydrochlorate of ammonia, is a white, translucent, tough, fibrous salt, in large cakes, about two inches thick, convex on one side, and concave on the other.

It has a saline, pungent taste, but no smell, dissolves in one part of boiling water, and three parts of cold. Taken internally, it is stimulant and alterative. It is a valuable remedy in chronic bronchitis, pleurisy, and inflammation of the serous and mucous membranes generally. But it must only be used after the first violence of these inflammations has abated. Pulverized, and placed over a spirit lamp in a tin cup, the fumes which arise when it sublimes may be inhaled five or ten minutes, once or twice a day, with great advantage in chronic bronchitis, and in chronic inflammations generally of the air-passages. A solution composed of one ounce of the salt dissolved in nine fluid ounces of water and one of alcohol, may be used as a wash for bruises, indolent tumors, and ulcers.

Solution of Acetate of Ammonia (*Liquor Ammoniacæ Acetatis*). — This is known by the common name of spirit of Mindererus. The taste is saline, and is like that of a mixture of nitre and sugar. It is a valuable diaphoretic, and is much employed, alone or mixed with sweet spirit of nitre, two parts to one, in fevers and inflammations. It is a valuable external application in mumps, applied hot upon a piece of flannel. One-half ounce mixed with seven ounces of rose-water and two drams of laudanum, forms a valuable wash for the eyes in chronic ophthalmia. The dose is from two to three drams mixed with sweetened water, every two or three hours.

Aromatic Spirit of Ammonia (*Spiritus Ammoniacæ Aromaticus*). — Taken internally, this answers the same purpose as other preparations of ammonia, and is much used on account of its agreeable taste and smell. It is valuable as an antacid in sick headache. Dose, from twenty to thirty drops, sufficiently diluted with water.

Anise (*Pimpinella Anisum*). — This is a perennial plant, and grows in Egypt. Its fruit is called anise-seed. It is aromatic and carminative. It is much used to allay nausea, flatulency, and colic, particularly in children. It is frequently added to other medicines to

make them more agreeable, and to lessen the griping effects of physic. The oil extracted from the seeds, dissolved in alcohol, an ounce of the former to a pint of the latter, forms what is called the essence of anise. Dose of the essence, from thirty drops to a dram in sweetened water. Anise forms a very valuable addition to cough preparations.

Arnica (*Arnica Montana*).— This is a perennial plant, growing in moist, shady places in Siberia, etc. It is often called leopard's bane. It is much used externally as a stimulating application to bruises, local inflammation, etc.

Preparations. — It is chiefly used in the form of tincture, or fluid extract. Dose, ten to thirty drops. Half an ounce of tincture, five and a half ounces of boiling vinegar, and two drams of carbonate of ammonia, used warm, make in some cases a valuable fomentation. It is one of the leading homœopathic remedies.

Arrowroot. — This is prepared from the *Maranta arundinacea*, a plant of the West Indies. It is chiefly used in forming dietetic preparations, and belongs to the first or saccharine group of food-articles.

Assafoetida. — This is the hardened juice from the root of a Persian plant. It is stimulant, antispasmodic, and expectorant, and is much used in nervous complaints. A dose of the powder is from five to ten grains, and of the tincture, made by macerating two ounces in a pint of diluted alcohol, from thirty to sixty drops.

Balm (*Melissa Officinalis*). — This is a perennial plant, growing in Europe and this country. It is moderately stimulant and diaphoretic. The warm infusion causes perspiration, and is used to relieve painful menstruation.

Balm of Gilead (*Populus Candicans*). — This is a tree growing in the northern parts of our country. A tincture made from the buds, in doses of from one to four fluid drams, is useful in affections of the kidneys, in scurvy, and rheumatism. Steeped in lard they form a useful ointment for some purposes.

Balmony (*Chelone Glabra*). — This is a perennial plant, common to the United States. It is tonic, cathartic, and vermifuge. It is used in indigestion, debility, and derangements of the liver. A dose of the powdered leaves is one dram; of the tincture, two fluid drams; of the decoction, one or two fluid ounces; of the active principle called chelonin, one or two grains. A decoction of balmony combined with tincture of assafoetida forms a valuable injection for worms. An ointment made from the fresh leaves is valuable for piles, inflamed breasts, tumors, and painful ulcers.

Balsam Copaiba. — This is obtained from a South American tree called the *Copaifera Officinalis*. It is a clear yellowish fluid, about the consistency of honey. It is a stimulating diuretic, and is much used in chronic gonorrhœa, gleet, irritable conditions of the bladder,

and chronic bronchitis. In some persons it causes an eruption on the skin, with itching, etc.

In large doses, it acts as a cathartic.

Balsam Tolu. — This is the juice of the tree *Myrospermum Toluiferum*, growing in South America. It is soft, tenacious, and of a pale brown color; and, like balsam copaiba, is soluble in alcohol, ether, and volatile oils. It has been used in asthma, cough, bronchitis, etc. Dose, from ten to thirty grains, in mucilage or syrup.

Barberry (*Berberis Vulgaris*). — This shrub grows along the Atlantic coast, from Canada to Virginia. The parts used are the bark and berries. It is tonic and laxative, and, in doses of a teaspoonful, powdered, is useful in jaundice, chronic diarrhoea, and chronic dysentery. A decoction of the berries forms an agreeable acid drink in fevers, cholera infantum, etc., and as a gargle it is useful for ulcers of the mouth, etc., as a wash, for chronic inflammation of the eyes, and as an injection for leucorrhœa.

Bayberry (*Myrica Cerifera*, Fig. 197). — This is found in damp places, in many parts of the United States, and is very abundant in New Jersey. The bark of the root is the part used. It is astringent and stimulant. Pulverized, and combined with powdered blood-root, it forms an excellent application to indolent ulcers. In the form of poultice, combined with powdered slippery elm, it is a useful application to scrofulous tumors or ulcers. The decoction is a good wash for sore mouth, and spongy, bleeding gums. It is chiefly used in the form of tincture, dose, half an ounce; fluid extract, dose, one or two drams; and the active principle, myricin, dose, two to ten grains.



FIG. 197. BAYBERRY.

Bearberry (*Uva Ursi*, Fig. 198). — This plant, also called upland cranberry, has a wide range, being found in the northern parts of Asia, Europe and America. It flowers from June to September, and ripens its berries in the winter. The leaves are the only medicinal parts. It is astringent and tonic, and acts particularly upon the urinary organs, for complaints of which it is generally used. It is specially valued as an antilithic in gravel, and as a remedy for chronic inflammation of the kidneys, ulceration of the bladder, etc.

Preparations. — Fluid extract, dose, one-third of a dram to a dram; solid extract, dose, five to fifteen grains; tincture, dose, one to two ounces.



FIG. 198.
BEARBERRY.

Beef's Galls (*Fel Bovinum*). — This being dried by evaporation, is

sometimes used as a tonic and laxative, in torpor of the liver, jaundice, indigestion, and costiveness, in doses of from one to ten grains. Three drams of ox-gall, one dram of extract of conium, two drams of soda soap, and one ounce of sweet oil, make a valuable preparation, which, when applied externally, has a surprisingly rapid effect in reducing enlargement and hardening of the breasts, glandular tumors, particularly enlargement of the tonsils, and is useful in hypertrophies generally. For application to the tonsils, the gall may be rubbed up with water to the consistence of an ointment, and may be applied with a camel's-hair brush.

Benzoin. — This is the hardened juice of a tree of Sumatra and Borneo. It is very brittle, of a reddish brown color, and is soluble in alcohol and ether. It is chiefly used for inhalation in chronic laryngitis and bronchitis. When used for this purpose, it may be added to boiling water, and the vapor inhaled; or it may be burned upon coals or a hot shovel, the fumes being inhaled.

Benzoic Acid. — This is prepared by heating benzoin, and causing it to sublime. It consists of silky, feathery crystals, which are white and soft. It has been found useful in the phosphatic variety of gravel. A convenient way of giving it is to unite one part of it with four parts of phosphate of soda, the dose of which is from ten to twenty grains.

Bethroot (*Trillium Pendulum*). — A perennial plant, growing in rich soils, in the Middle and Western States. The root is used, and is astringent, tonic, and antiseptic. It is useful in bleeding from the lungs and kidneys; also in excessive menstruation, cough, asthma, and difficult breathing. Boiled in milk, it is used, in the western country in diarrhœa and dysentery.

Preparations. — Fluid extract, dose, one to three drams; trillin, dose, four to eight grains; infusion, dose, two to four ounces; decoction used as a local application to ulcers and sore mouth, and as an injection in leucorrhœa and gleet. A poultice made from the root is useful for carbuncles, indolent tumors, buboes, foul ulcers, and for stings of insects.

Bitter-root (*Apocynum Androsæmifolium*, Fig. 199). — An indigenous plant, growing in rich soils in the United States and Canada. The root is the part used, and is laxative, tonic, diaphoretic, and alterative. It is employed in chronic affections of the liver, syphilis, scrofula, intermittents, and the low stage of typhoid fevers. Forty to fifty grains will cause vomiting without much nausea.

Preparations. — Fluid extract, dose, as a tonic, ten to twenty drops; as a diaphoretic, fifteen to twenty-five drops; as an emetic, half



FIG. 199. BITTER-ROOT.

a dram to a dram. Solid extract, dose, two to eight grains; apocynin, the active principle of the root, dose, half a grain to two grains; tincture, dose, two to three drams; infusion, dose a wine-glassful, three times a day.

Bismuth. — The principal preparation of this metal used in medicine, is the *trisnitrate of bismuth*, also called *nitrate*, *subnitrate*, and *white oxide of bismuth*. It is a white powder, without smell or taste. It is used for various irritable and painful affections of the stomach, when there is no acute inflammation. It is particularly useful in chronic diarrhœa, more especially the diarrhœa of the latter stages of consumption, *over which it has more control than any other known remedy*. To show its best effects in this form of diarrhœa, it should be given in large doses, not less than fifteen to twenty grains, immediately after each meal. The small doses usually given are comparatively useless. Given in these full doses, it is also almost a specific in heartburn and water-brash.

Bittersweet (*Solanum Dulcamara*). — This is common in Europe and North America. It is a woody vine, the roots and stalks of which are used in medicine. It is slightly narcotic, and has alterative and diaphoretic properties. It is used in scaly and syphilitic affections of the skin. It is said to have antaphrodisiac properties, and is serviceable in mania connected with strong venereal propensities.

Preparations. — Fluid extract, dose, half a dram to a dram; solid extract, dose, three to eight grains; infusion, dose, one to three ounces, three or four times a day.

Black Alder (*Prinos Verticillatus*). — This shrub is common in the United States, its bark and berries are used. It has been found useful in jaundice, diarrhœa, intermittent fever and other diseases connected with debility. Applied locally in the form of a wash or poultice, and given internally, it is popular in chronic eruptions of the skin, and in flabby, ill-conditioned ulcers, and mortification.

Preparations. — Fluid extract, dose, two drams; tincture, dose, two to four drams.

Two drams of the fluid extract of black alder, one dram of the fluid extract of golden seal, and one pint of water, mixed, and taken in doses of four fluid ounces, three or four times a day, are valuable in dyspepsia.

Blackberry (*Rubus Villosus*). — There are many species of this growing in the United States. The bark of the root is the part used. It is tonic, and strongly astringent, and is a valuable remedy in diarrhœa, dysentery, cholera-infantum, relaxed condition of the bowels of children, and the passive discharge of blood from the stomach, bowels, and womb.

Preparations. — Fluid extract, dose, half a dram to a dram; solid extract, four to six grains; tincture, dose, two to four drams; infu-

sion, dose, one ounce. This last preparation is also useful as an injection in gleet, leucorrhœa, and prolapsus of the rectum and womb. The syrup of the blackberry-root is also a valuable preparation; so also is blackberry brandy, so called, which is the juice of the fruit mixed with brandy. This is excellent in summer complaints.

Black Cohosh (*Cimicifuga Racemosa*, Fig. 200). — This grows in rich soils throughout the United States. The root is the part used. It is slightly narcotic, sedative, antispasmodic, antiperiodic, and exerts a marked influence over the nervous system; being useful in St. Vitus's dance, epilepsy, nervous excitability, asthma, delirium tremens, and many spasmodic affections. It has an especial affinity for the uterus.

It reduces the arterial action very materially, and hence is useful in palpitation of the heart. It has been used successfully in acute rheumatism, but more particularly in chronic rheumatism.

Preparations. — Fluid extract, dose, half a dram to two drams; solid extract, dose, four to eight grains; tincture, four ounces to the pint of alcohol; dose, one to three drams; cimicifugin, the active principle, dose, one to six grains.



FIG. 200.
BLACK COHOSH.

Black Willow (*Salix Nigra*). — This tree is found in the Northern States, along the banks of rivers, especially in New York and Pennsylvania, and is known by the common name of pussy-willow. It is a bitter tonic, and is sometimes used in fever and ague. A decoction made from the buds is said to be a powerful antaphrodisiac, and is accordingly useful in the treatment spermatorrhea.

Bloodroot (*Sanguinaria Canadensis*, Fig. 201). — A perennial plant, growing in light, rich soils, in most parts of the United States. The root is the part used. It is emetic, narcotic, expectorant, alterative, escharotic, and errhine. It is used in typhoid pneumonia, bronchitis, rheumatism, dyspepsia, etc. Three to five grains stimulates the digestive organs, and accelerates the pulse.



FIG. 201.
BLOODROOT.

Preparations. — Fluid extract, dose, five to fifteen drops; solid extract, half a grain to a grain and a half; tincture, twenty drops to a dram; sanguinaria, the alkaloid principle, from one-twentieth to one-tenth of a grain.

Four-grain pills, made of sanguinarin, twelve grains, caulophyllin, twelve grains, solid extract of cimicifuga, twelve grains, are said to be efficacious in amenorrhœa, dysmenorrhœa, and other female disorders.

Blue Cohosh (*Caulophyllum Thalictroides*, Fig. 202). — A perennial plant, growing in low, moist grounds in most parts of the United States. The root is the part used. It is antispasmodic, diuretic, diaphoretic, alterative, emmenagogue, anthelmintic, parturient, and tonic. It is used in rheumatism, dropsy, epilepsy, hysterics, cramps, amenorrhœa, dysmenorrhœa, chorea, leucorrhœa, hiccough, to hasten delivery, and to relieve after-pains.

Preparations. — Fluid extract, dose, fifteen to thirty drops; solid extract, dose, one to three grains; tincture, dose, half a dram to a dram; infusion, dose, two to three ounces; caulophyllin, the active principle of the root, dose, one-quarter of a grain to a grain.

In cases of protracted labor, occasioned by fatigue or debility, the infusion is said to be fully equal to ergot in hastening delivery. A wash made by combining one ounce of fluid extract with one ounce of the fluid extract of golden seal, and eight ounces of water, is very excellent for apthous sore mouth.



FIG. 202. BLUE COHOSH.



FIG. 203. BLUE FLAG.

Blue Flag (*Iris Versicolor*, Fig. 203). — A perennial plant, growing in damp places, in most parts of the United States. The root is the part used for medicinal purposes. It is cathartic, alterative, siagagogue, and diuretic. It acts particularly on the glandular system; in large doses, it evacuates and exhausts the system, acting on the liver, and fulfilling the purposes of mercury.

Preparations. — Fluid extract, dose, twenty to forty drops; solid extract, one to three grains; tincture, one to two drams. Iridin, the active and resinous principle, dose, half a grain to three grains. Equal parts of blue flag, mandrake, and prickly-ash bark, mixed, and given in five- to ten-grain doses, every two or three hours, will act as a powerful alterative, and cause free salivation, without making the breath offensive or injuring the gums. Three grains of iridin, five grains of leptandrin, and twenty grains of bitartrate of potassa, form an excellent cathartic in dropsy, producing free watery stools.

Blue Pill (*Hydrargyri Pilulæ*).—This mercurial preparation, generally known by the common name of *blue mass*, or *blue pill*, is made by rubbing mercury, confection of roses, and pulverized liquorice-root together until all the mercurial globules disappear. The mass is divided into pills when wanted. It is the mildest of all the mercurial preparations, and the least liable to produce salivation or irritation of the system. But even this should be used sparingly, and with caution, and I do not recommend its use.

The blue mass is alterative and cathartic, and is considerably given to stimulate the action of the liver, and to produce an alterative effect upon the digestive organs. The leptandra and the podophyllum have become its rivals, and will, I sincerely hope, finally take its place.

Boneset (*Eupatorium Perfoliatum*, Fig. 204).—An indigenous plant growing in most parts of the United States. The tops and leaves are medicinal. It is tonic, diaphoretic, expectorant, and, in large doses, or when taken as a warm infusion, emetic and aperient.

Preparations. — Fluid extract, dose, one to two drams; solid extract, dose, five to fifteen grains; tincture, dose, one to one and one-half ounces; infusion, dose, one to two ounces. Eupatorin, dose, one to three grains.

Two scruples of eupatorin, one scruple of xanthoxylin, and one grain of strychnia, mixed, and made into twenty powders, is excellent for torpor of the liver or kidneys, and for rheumatism; one powder being taken three or four times a day.



FIG. 204. BONESET.



FIG. 205. BUCHU.

Buchu (*Barosma Crenata*, Fig. 205).—It grows at the Cape of Good Hope. The leaves are the medicinal portion; they are stimulant, diuretic, antispasmodic and tonic. Buchu is chiefly given in complaints of the urinary organs, attended with increased uric-acid gravel, chronic inflammation or morbid irritation of the bladder, urethra, and prostate, and retention or incontinence of urine.

Preparations. — Fluid extract, dose, half a dram to two drams; tincture, dose, two to five drams; infusion, one to five ounces. A combination of fluid extract of buchu half an ounce, acetate of

potash two drams, and water eight ounces, taken in doses of four ounces three or four times a day, is a valuable diuretic.

This combination, however, may be improved by the addition of a little sweet spirits of nitre.

Buckhorn Brake (*Osmunda Regalis*).— This is a fern growing in moist grounds in most parts of the United States. The root, which is the medicinal part, should be gathered in the latter part of May, and in August, and very carefully dried, to prevent moulding. It is mucilaginous and tonic, and is used in coughs, diarrhœa and dysentery, and as a tonic while getting up from exhausting disease. One root infused in a pint of hot water for half an hour will convert it into a thick jelly. This mucilage may be sweetened with sugar, and freely taken.

Buckthorn (*Rhamnus Catharticus*).— This plant grows in Europe, where it is much esteemed by practitioners. The berries and juice are actively medicinal. It is a powerful cathartic, producing large watery discharges. It is seldom used alone on account of the severity of its action.

Preparations.— Fluid extract, dose, one dram; syrup of buckthorn, made by uniting four ounces of fluid extract with twelve ounces of simple syrup, dose, two drams.

Bugleweed (*Lycopus Virginicus*).— This grows in shady and wet places throughout a greater part of the United States. The whole herb is used. It is a mild narcotic, sedative, sub-astringent, and styptic. It is a valuable remedy in bleeding from the lungs, incipient consumption and pneumonia. It quiets irritation and allays cough and nervous excitement.

Preparations.— Fluid extract, dose, one to two drams; infusion, dose, two to four ounces.

Burdock (*Lappa Minor*).— A native of Europe, and growing in the United States. The root is used, which is useful in scurvy, syphilis, scrofula, gout, leprosy, and disease of the kidneys. It needs to be used for a long time. It is said to be useful for persons afflicted with boils, styne, etc. An ointment prepared from it is serviceable in some diseases of the skin, and obstinate ulcers.

Preparations.— Fluid extract, dose, one dram; solid extract, dose, five to fifteen grains; tincture, dose, half an ounce to an ounce.

Burgundy Pitch.— This is the concrete juice of the Norway pine, *Abies excelsa*, growing in Europe and Northern Asia, and of the silver fir-tree of Europe, *Abies picea*. It gently excites the skin, and is used chiefly in the form of plasters, either alone or mixed with other gums and resins.

Butternut (*Juglans Cinerea*).— This is a forest tree, growing in various parts of this continent, known also by the names of oilnut

and white walnut. The inner bark of the root is used, and is a mild cathartic, being useful in cases of constipation. It is much employed by families as a domestic remedy, in intermittent and remittent fevers. It evacuates the bowels without debilitating them.

Preparations. — Fluid extract, dose, one to two drams; solid extract, dose, five to fifteen grains; juglandin, the active principle, dose, one to three grains. A very good pill is made by mixing one and a quarter drams of the solid extract of butternut, three-quarters of a dram of the solid extract of jalap, and ten grains of soap, and dividing the whole into sixteen pills. Two or three may be taken for a dose.

Calcined Deer's Horn (*Cornu Cervinæ Ustum*). — The horns of the deer are said to be in velvet between August and December, and during this period those which fall are collected, coarsely rasped, and placed in an iron vessel, which is tightly covered and placed in an oven, or elsewhere, and subjected to a heat of 200° F., which is continued until the rasped horn becomes of the color of roasted coffee. When cooled, it is reduced to powder by trituration, and preserved in closely stopped vials. It is a powerful styptic, taken in teaspoonful doses every half-hour; or, a teaspoonful added to a gill of hot water, and a tablespoonful of this taken every five or ten minutes. It has much efficacy in floodings from the womb, and in excessive menstruation.

Calomel (*Hydrargyri Chloridum Mite*). — This is prepared from mercury, sulphuric acid and common salt. It is alterative, antisyphilitic, and anthelmintic, and, in large doses, purgative. It is much used in venereal diseases and chronic affections of the liver, combined with opium; in dropsies, combined with squill, foxglove and elaterium; and in rheumatism and leprosy, combined with antimonials, guaiacum, and other sudorifics. In the beginning of fevers and other complaints, it is often combined with purgatives, as gamboge, scammony, jalap and rhubarb. Given in small doses, not large enough to purge, it gradually excites salivation. Dose, from one to three grains.

The tendency of this article to produce salivation, to injure the gums, loosen the teeth, etc., has given rise to much prejudice against it in the public mind; and, indeed, it must be confessed that it has been used by many, from time immemorial, with great indiscretion. In the hands of sensible and prudent men, it is very serviceable in some cases; but the podophyllum and leptandra have so fine an action upon the liver, that they are fast taking the place of calomel and other mercurials, and possibly may in time wholly supersede them. I have not prescribed it in this book, and do not recommend its use.

Camphor (Fig. 206).—This is obtained from an evergreen tree,



FIG. 206. CAMPHOR TREE.

growing in the East Indies, — *Laurus camphora*. It is a white, shiny, crystalline substance, extracted from the wood and roots of the above-named tree by boiling them, and is subsequently purified by sublimation. It has a penetrating, peculiar diffusible odor, and a pungent, cooling taste. It is moderately stimulant, diaphoretic, and antaphrodisiac. Dose, from one to ten grains.

Canada Balsam.—This is the fluid obtained from the fir-balsam, *Abies balsamea*, of Canada, Maine, etc. It is a stimulating diuretic, and, in large doses, cathartic. A dose is from ten to fifteen drops, two or three times a day, in pills, or in emulsion. It forms a part of several ointments and plasters. It is used to mount objects in microscopic investigations.

Canada Fleabane (*Erigeron Canadense*).—An annual plant, growing in the Northern and Middle States. It is diuretic, tonic, and astringent, and has been found useful in dropsical complaints and diarrhoea. The dose of the powder is from thirty grains to a dram; of the infusion, from two to four fluid ounces; of the solid extract, from five to eight grains; to be repeated, in each case, every two or three hours.

Canella (*Canella Alba*).—This is the bark of a South American tree, and is an aromatic stimulant and a gentle tonic, and useful in debility of the stomach.

Caraway (*Carum Carui*).—This biennial plant grows in Europe. The seeds are the part used, and are aromatic and carminative; they are used in wind colic, and to improve the flavor of other medicine. The dose is from ten to sixty grains. The dose of the oil of caraway, extracted from the seeds, is from one to five drops.

Cardamom (*Alpinia Cardamomum*).—This plant grows on the mountains of Malabar. The seeds, which are the medicinal parts, are aromatic and carminative, and are used to expel wind, and to flavor medicines. Dose, from ten grains to two drams. The volatile oil obtained from them has similar properties.

Cascarilla.—This medicine is the bark of the West India shrub, *Croton eleuteria*. It has an aromatic odor, and a warm, spicy taste. It is a pleasant aromatic and tonic, and is used in dyspepsia, chronic diarrhoea and dysentery, wind colic, and other debilities of the stomach and bowels. It counteracts the tendency of cinchona to produce nausea.

Preparations.—Fluid extract, dose, twenty to twenty-five drops:

tincture, dose, one dram; infusion, dose, one to two drams. An alkaline infusion, composed of fluid extract, three ounces; carbonate of potassa, two drams; and water, ten ounces, is excellent in weak stomach, with acidity. Dose, one dram.

Castor (*Castoreum*). — A peculiar substance obtained from the beaver. It is antispasmodic and emmenagogue. It is used in typhus, hysterics, epilepsy, retention of the menses, and in many other nervous diseases. Dose, from ten to fifteen grains. A medicine of no great value.

Castor Oil (*Oleum Ricini*). — This is obtained by expression from the seeds of the castor-oil bush, *Ricinus communis*. When exposed to the air, it becomes rancid and spoils.

As a mild cathartic this oil is extensively used, but may be rendered less offensive by being mixed with a few drops of oil of winter-green, peppermint or cinnamon; and its bad taste may be nearly destroyed by rubbing it up to a thick batter with carbonate of magnesia. Or, if boiled a few minutes with a little sweet milk, sweetened with loaf sugar, and flavored with essence of cinnamon or peppermint, it may be easily taken. Dose, for an adult, one to two tablespoonfuls; for a child, one, two or three teaspoonfuls, according to its age.

Catechu. — This is a solid extract, made from the wood of the *Acacia catechu*, a tree growing in Asia. It is in dark, brown, and brittle pieces, and is soluble in alcohol. It is a powerful astringent, and is used in chronic diarrhœa and chronic dysentery. It makes a useful gargle in some forms of sore mouth, in elongated uvula, spongy gums and sore nipples. The dose of the powder is from ten to twenty grains, and of the tincture, from one to two teaspoonfuls.

Catnip (*Nepeta Cataria*). — A native of Europe, and widely naturalized in this country. The tops and leaves are the medicinal part, and are carminative and diaphoretic when drunk as a warm infusion. It is useful in fevers, in wind colic, nervous headache, hysterics, and nervous irritability.

Preparations. — Fluid extract, dose two to three drams; infusion, dose two to three ounces. Fluid extract of catnip, two ounces; and the fluid extract of saffron, one ounce and a half, united, make a popular remedy for colds, and the rashes of children. In nervous complaints, a combination of fluid extract of catnip, six drams; fluid extract of valerian, four drams; and fluid extract of scullcap, four drams, is a valuable remedy. Dose, one to two drams.

Cayenne Pepper (*Capsicum Annuum*, Fig. 207). — This plant grows in hot climates, and is known by the common name of *red pepper*. The berry, which is the part used, has an intensely hot and pungent taste. It is a powerful, diffusible stimulant, and is about the

only stimulus which the stomach will bear in certain forms of dyspepsia. It is useful in all cases of diminished vital action, and is frequently united with other medicines, either to promote their action,



FIG. 207. CAYENNE PEPPER.

or to lessen the severity of their operation. It is much used in colds, hoarseness, etc., as it promotes a free discharge of mucus and phlegm. Taken in small doses, it has a fine effect upon the mucous membrane of the stomach and bowels, lessening very much the severity of piles, and sometimes curing them. It may be sprinkled daily upon the food, or taken in the form of cayenne lozenges; it is frequently useful as a gargle in sore throats, scarlet fever, etc. Dose of the powder from one to eight grains.

Preparations. — Fluid extract, dose, five to ten drops; tincture, dose, half a dram to a dram, used in low forms of fever, and gastric insensibility; infusion, dose, one to two drams. A valuable gargle in scarlet fever may be made by combining fluid extract of cayenne one ounce; common salt, one dram; boiling vinegar, one pint; boiling water, one pint.

Celandine (*Chelidonium Majus*). — This plant is indigenous to Europe, and is extensively naturalized in the United States. It is a drastic purge, producing watery stools, and is equal to gamboge; it is useful in affections of the liver, and particularly in those of the spleen. In the form of a poultice it is effective in scrofula, indolent ulcers, skin diseases, and piles.

Preparations. — Fluid extract, dose, ten to fifteen drops; solid extract, dose, five to eight grains; tincture, dose, half a dram to a dram; infusion, dose, two and a half to four drams. A very good hydragogue cathartic is made by compounding two and a half drams of fluid extract of celandine with half a dram of fluid extract of henbane, one ounce of sulphate of potassa, one grain of tartar emetic, six ounces of elder-water, and ounce of syrup of squill.

Chalk. — On account of its gritty particles, it is unfit for medicinal use until it has been levigated, after which it is called *prepared chalk*. This is the only form in which it is used in medicine. It is an excellent antacid, and is admirably adapted to diarrhoea accompanied with acidity. The most convenient form of administering chalk is that of the chalk mixture, which consists of prepared chalk, half an ounce; sugar and powdered gum-arabic, two drams each; cinnamon-water and water, four fluid ounces each, and rubbed together in a mortar till they are thoroughly mixed. Dose, a tablespoonful frequently repeated.

Cassia-Buds. — This spice is a product of China. It consists of the calyx surrounding the young germ of one or more species of cinnamon. Cassia buds have some resemblance to cloves, and are compared to small nails with round heads. They may be used for the same purposes as the cinnamon-bark.

Chamomile (*Anthemis Nobilis*, Fig. 208). — This perennial plant grows in Europe, and its flowers, the whitest of which are best, are considerably used in medicine. They are gently tonic, and are generally used in cold infusion, in cases of weak stomach, dyspepsia, etc. In large doses, the warm infusion will act as an emetic.

Preparations. — Fluid, extract, dose, half a dram to a dram; solid extract, dose, four to fifteen grains; infusion, dose, half an ounce to an ounce. For dyspepsia, wind in the stomach, etc., thirty pills may be made by combining one dram of solid extract of chamomile with five grains of the solid extract of rhubarb and ten grains of assafoetida, and taken, one pill at a time, two or three times a day, with advantage.



FIG. 208. CHAMOMILE.

Charcoal (*Carbo Ligni*). — Prepared charcoal is antiseptic and absorbent, and is employed with great advantage in certain forms of dyspepsia, attended with bad breath and putrid eructations; it has a good effect in correcting the fetor of the stools in dysentery: it is considerably used, and with much advantage, as an ingredient in poultices. Dose, when taken internally, from one to three teaspoonfuls.

Chloroform (*Chloroformum*). — This is an anæsthetic, used to produce insensibility during surgical operations. A teaspoonful or more is poured upon a handkerchief, which is held to the patient's nose, but not so closely as to prevent the admission of air. The numerous sudden deaths which have occurred from its use prove it to be an unsafe agent, and it is now seldom employed by careful surgeons. Taken internally it is sedative and narcotic; applied externally, combined with other articles, it is useful in painful affections, as nervous headache, rheumatism, neuralgia, etc. The dose when taken internally is from ten to twenty drops, in flax-seed tea.

Cinnamon. — This is the bark of trees growing in Ceylon, Malabar, and Sumatra. It is a very grateful aromatic, being warm and cordial to the stomach; it is also carminative and astringent.

It is not often prescribed alone, but is chiefly used as an aid to less pleasant medicines, and enters into a great number of preparations. It is peculiarly adapted to diarrhoea; and in treating this complaint

it is often joined with chalk and astringents. Dose of the bark, from ten to fifteen grains. The oil has properties similar to those of the bark.

Cleavers (*Galium Aparine*). — An annual plant, common to this country and Europe, having an acid, astringent taste. The whole herb is used in infusion, as a cooling diuretic, in scalding of the urine, inflammation of the kidneys and bladder, in gravel, suppression of the urine, etc.

It is also used in fevers and all acute diseases. The infusion is made by adding two ounces of the herb to a pint and a half of warm water. It should stand three or four hours, and be drunk freely when cold. Equal parts of elder-blows, cleavers, and maiden-hair, infused in warm water, make a refreshing drink in scarlet fever and other eruptive diseases.

Cloves (*Caryophyllus Aromaticus*). — The flowers of this tree, a native of tropical climates, collected before they are fully developed, form cloves. They are highly stimulant and aromatic, and are used to give tone to the digestive organs, particularly when flatulency exists, and to relieve nausea and vomiting. They are more generally employed to improve the taste and modify the action of other medicines. The dose in powder is from five to eight grains. The oil of cloves has similar properties; dose, one to three drops. A little cotton moistened with the oil, and pressed into a decayed tooth, will frequently relieve the toothache.

Cochineal (*Coccus Cacti*). — An insect found in Mexico, inhabiting different species of cactus. They are gathered for use by detaching them from the plant with a blunt knife, and dipping them, enclosed in a bag, into boiling water. Cochineal is anodyne, and has been used with advantage in whooping-cough and neuralgia. It is much used for coloring tinctures and ointments, and the color called carmine is prepared from it. A tincture is prepared by macerating two ounces of cochineal in one pint of alcohol for seven days, and filtering through paper. Dose, from twenty to twenty-five drops, twice a day.

Cod-Liver Oil (*Oleum Morrhue*). — This is obtained from the livers of codfish, and is nutritive and alterative. It is a popular remedy in consumption and scrofula, and in those complaints generally in which there is impaired digestion, assimilation, and nutrition. Dose, a tablespoonful three times a day.

Inability to digest this oil, to eat fat meats, or to take fats in any form, is an unfavorable indication in consumption.

Collodion. — This is gun-cotton dissolved in ether. It is applied with a camel's-hair brush, to cuts, burns, wounds, leech-bites, etc., over which it forms a thin pellicle or skin, protecting the injured part from the atmosphere. It should be kept in well stopped bottles, to prevent its evaporating and becoming unfit for use.

Colocynth (*Cucumis Colocynthis*).—A native of northern Africa. The part used in medicine is the fruit deprived of its rind. It is a powerful drastic, hydragogue cathartic; causing, by its harsh action, griping, vomiting, and sometimes bloody discharges; from the severity of its operations, it is rarely used alone. Useful in dropsy, derangements of the brain, and for overcoming torpid conditions of the digestive and biliary organs.

Preparations.—Solid extract, dose, two to twenty grains; compound extract, dose, two to twenty grains.

Colombo (*Cocculus Palmatus*).—A perennial climbing plant, growing in East Africa, and cultivated in the Isle of France. It is a pure, bitter tonic, and is used in dyspepsia, bilious vomitings which attend pregnancy, and during recovery from exhausting diseases.

Preparations.—Fluid extract, dose, twenty to thirty drops; solid extract, dose, four to eight grains; tincture, dose, one to three drams; infusion, dose, three drams to an ounce. A compound infusion made by uniting one dram of fluid extract, four drams of orange-peel, and one ounce of water, is useful in a weakened state of the bowels, showing itself in a diarrhœa. Dose, two drams every hour. Fluid extract of colombo, one ounce; fluid extract of ginger, two drams, and water, one pint, also make a useful compound for the same purpose. Fluid extract of colombo, one dram; fluid extract of rhubarb, one dram; fluid extract of ginger, half a dram; water, one pint,—this is useful for a like purpose. The following is also a very good preparation for a similar use; fluid extract of colombo, half an ounce; fluid extract of cascarilla, two drams; tincture of orange-peel, two drams; syrup of cinnamon, one ounce; water, six ounces. Dose, one dram every hour.

Coltsfoot (*Tussilago Farfara*).—A native of Europe, and naturalized in this country, especially in the Northern States. It grows in wet places and low meadows. The leaves are principally used. They are emollient, demulcent, and slightly tonic; used in coughs, asthma, and whooping-cough; and externally in the form of poultice for scrofulous tumors.

Comfrey (*Symphytum Officinale*).—A perennial European plant, cultivated in this country. The root is the part used. It is demulcent, and slightly astringent, and is serviceable in diseases of the mucous tissues, and in scrofulous habits; also in diarrhœa, dysentery, coughs, bleeding from the lungs, whites, etc. It may be taken as an infusion, or as a syrup, one ounce to a pint of water; the dose being one to three fluid ounces, three to four times a day. The fresh root bruised forms a valuable application to ulcers, bruises, fresh wounds, sore breasts, and white swellings.

Common Silk-Weed (*Asclepias Syriaca*).—This is a perennial plant, common throughout the United States. It gives out a milky

juice upon being wounded, and hence is often called milk-weed. The root is diuretic, alterative, emmenagogue, and anodyne; and is sometimes used in dropsy, retention of urine, suppressed menstruation, scrofula, and rheumatism. Dose of the powder, from eight to twenty grains; of the decoction, from one to two fluid ounces.

Copper (*Cuprum*). — The following are the principal salts of copper used in medicine: —

Subacetate of Copper (*Cupri Subacetas*). — This is known by the name of verdigris, and is used as a detergent and escharotic; it is applied to warts and fungous growths, and to foul ulcers and ring-worm. When reduced to a fine powder, by trituration in a porcelain mortar, the finer parts of this are separated, and called prepared subacetate of copper; this is the preparation used for the purposes above named.

Sulphate of Copper (*Cupri Sulphas*). — In small doses, the sulphate of copper is astringent and tonic; in large ones a prompt emetic. It is given in small doses in hysterics, epilepsy, and intermittent fevers; and in large doses, to produce speedy vomiting in croup, and to eject poisons from the stomach. A weak solution is sometimes used for syphilitic ulcers, and as an injection in gleet. Dose, as a tonic, one-quarter of a grain to one grain in pill; as a rapid vomit, from two to five grains, in two ounces of water. The medicines which are incompatible with copper, are alkalies, earths and their carbonates, borax, salts of lead, acetate of iron, and astringent vegetable infusions, decoctions, and tinctures.

Corrosive Sublimate. — This, in chemical language, is the bichloride of mercury. It is one of the milder mercurial preparations, although when taken in large doses, it is a violent poison, and operates very quickly. It is less apt to salivate than any other mercurial, except blue pill. It is much used as a remedy in syphilis, particularly in the secondary stage, in which, in many cases, it does much good. It is also popular in many skin diseases, as leprosy. When employed for this purpose, it is generally associated with alterative and diaphoretic medicines, such as the compound decoction or syrup of sarsaparilla, preparations of yellow dock, etc. In order to avoid its irritating effects, it is often united with opium, or extract of conium. Dissolved in water, it is valuable as a wash in some skin diseases. It is an ingredient in many of the quack nostrums which are extensively advertised. It is the most powerful antiseptic known.

Cotton (*Gossypium Herbaceum*). — Cotton is chiefly employed in cases of recent burns and scalds,—an application of it which surgeons have learned from popular use. It diminishes the inflammation, prevents blistering, and hastens the cure. It is applied in thin and successive layers. The absorbent should be used. The inner bark of the root is said to be emmenagogue, parturient, and abortive. It is excellent in chlorosis.

Preparation. — Fluid extract, dose, three drams.

Cranesbill (*Geranium Maculatum*, Fig. 209). — An indigenous plant, growing in all parts of the United States, in the open woods. The root is the medicinal part. It is a powerful astringent, similar to kino and catechu, and a valuable substitute for those articles, because less expensive. It forms an excellent gargle in sore throats and ulcerations of the mouth, and is valuable for treating those discharges arising from debility, after the exciting causes are removed. It has no unpleasant taste, and is therefore well adapted to infants and persons of delicate stomachs. As an injection, it is used in gleet and whites.



FIG. 209. CRANESBILL.

Preparations. — Fluid extract, dose, half a dram to a dram; solid extract, dose, three to ten grains; geraniin, the active principle, dose, one to three grains; tincture, dose, two and a half to three drams; infusion, dose, one to two ounces. A valuable astringent wash for sore mouth, etc., and as an injection in leucorrhœa, etc., is made by uniting fluid extract of cranesbill, half an ounce; fluid extract of black cohosh, half an ounce; fluid extract of golden seal, half an ounce; fluid extract of witch-hazel, half an ounce; and water, one quart. Geraniin, dioscorein, and caulophyllin, united in equal parts, and given to an adult in six-grain doses, every fifteen or twenty minutes, have an excellent effect in diarrhœa and cholera-morbus, when there is much pain and rumbling of the bowels.

Crawley (*Corallorhiza Odontorhiza*). — A perennial plant, growing on barren hills and hard clay soils in New York. The root is the part used. It is sedative and diaphoretic, and is used in inflammatory diseases, and in typhoid fever; also in flatulency, cramps, hectic fever and night-sweats. When the liver requires to be acted upon, it should be combined with mandrake or Culver's root. The powdered root should be kept in well-stopped vials; its dose is from twenty to twenty-five grains, in warm water, every hour or two.

Creosote (*Creosotum*). — This is obtained by the distillation of tar. It is irritant, narcotic, styptic, antiseptic, and moderately escharotic. It has been given in diabetes, epilepsy, hysterics, neuralgia, bleeding from the lungs, and chronic bronchitis. It is an excellent remedy for arresting nausea and vomiting, when not dependent on inflammation. The dose, when given internally, is one or two drops. It is most easily taken in the form of pill. In some forms of bronchitis, the vapor of creosote is inhaled with advantage. It may sometimes be applied with excellent effect, to indolent or ill-conditioned ulcers, in which case, two, four, or six drops may be dissolved in an ounce of distilled water. In some cases the solution is mixed with

poultices. One or two drops of pure creosote, introduced into a hollow tooth on a little cotton, is generally a speedy remedy for toothache, but great care must be taken that it does not come in contact with the tongue or cheek.

Croton Oil (*Oleum Tiglii*). — This is obtained from the seeds of the *Croton Tiglium*, a plant growing in the East Indies. It is a powerful cathartic, producing watery stools, and is used in torpidity of the bowels, dropsy, apoplexy, mania, inflammation of the brain, hydrocephalus, coma, and wherever a powerful revulsive action is needed to call the blood away from the brain. A drop placed on the tongue of a person in the comatose state, will generally operate. Two to six drops, rubbed upon the skin, produce an eruption of pimples in twelve hours. In this way, it is used in diseases of the throat and chest, and some other affections. If the skin is very sensitive, let it be combined with an equal quantity of sweet oil. Use only under the direction of a physician.

Cubebs (*Cubebæ*). — A climbing perennial plant, growing in the East Indies. The berries are the medicinal part. They are stimulant, purgative, and diuretic, acting particularly upon the urinary organs and arresting discharges from the water-pipe, and much used in the treatment of gonorrhœa and gleet. It should not be used during active inflammation. Dose of powdered cubebs, from thirty to forty grains.

Preparations. — Fluid extract, dose, half a dram to a dram and a half; ethereal fluid extract, dose, one to two drams; solid extract, dose, two to twenty grains; tincture, dose, one to two drams. A compound, made of fluid extract of cubebs, five drams; fluid extract of ergot, one and a half drams; cinnamon water, half a dram; and powdered loaf-sugar one dram, may be taken with advantage in gonorrhœa, gleet, and leucorrhœa; dose, one dram.

Culver's Root (*Leptandra Virginica*.) — A perennial plant growing throughout the United States in limestone districts, and flowering in July and August. The root is the medicinal part. It is frequently called *black root*. When dried, it is tonic, cholagogue, and laxative, and is a very valuable remedy in affections of the liver, as it acts upon this organ with energy, without purgation. It is also useful in typhoid fevers, and in dyspepsia, diarrhœa, and dysentery. A powder is made from it, containing its active principle, and called leptandrin, which has a fine effect in diarrhœa, cholera infantum, typhoid fever, some forms of dyspepsia, and in all diseases connected with derangements of the liver.

Preparations. — Fluid extract, dose, one-third of a dram to a dram; leptandrin, the active principle, dose, in acute cases, one-fourth of a grain to one grain; in chronic cases, one to two grains; tincture, two ounces to a pint of alcohol, dose, one dram to one-half ounce.

Dandelion (*Taraxacum*, *Dens Leonis*.) — This perennial herb is diuretic, aperient, and tonic. It is generally thought to act especially upon the liver. Used in dyspepsia, diseases of the liver and spleen, and in debilitated and irritable conditions of the stomach and bowels.

Preparations. — Fluid extract, dose, one to two drams; compound fluid extract, dose, one to two drams; fluid extract of dandelion and senna, dose, one to two drams; solid extract, dose, ten to fifteen grains; infusion, two ounces to one pint of water, dose, four to five ounces. In dropsical affections, the following compound infusion will be found useful: fluid extract of dandelion, six drams; fluid extract of rhubarb, one and a half drams; fluid extract of henbane, twenty-four drops; bicarbonate of soda, half a dram; tartrate of potassa, three drams; water, three and a half ounces; take one-third, three times a day. For jaundice and diseases of the liver and kidneys, the following pills have much efficacy: Solid extract of dandelion, one dram; solid extract of bloodroot, one dram; leptandrin, one scruple; podophyllin, five grains; oil of peppermint, five minims; to be divided into fifty pills, and one or two taken three times a day.

Deadly Nightshade. — (*Atropa Belladonna*, Fig. 210). — A perennial plant, growing in Europe and this country, and having a faint odor, and a sweet, nauseous taste. It is narcotic, diaphoretic, and diuretic; is a valuable remedy in convulsions, neuralgia, whooping-cough, rheumatism, gout, paralysis, and many diseases having their seat in the nervous system. It has been much praised as a preventive of scarlet fever, though its powers for this purpose are doubtful.

Preparations. — Fluid extract, dose, five to eight drops; solid extract, dose, one quarter to one grain; tincture, two ounces to a pint of diluted alcohol; dose, from thirteen to thirty drops. The solid extract is used, mixed with lard or with other substances, as a local application for relieving pain, dilating the pupil of the eye, for removing stricture of the urethra, the anus, rigidity of the mouth of the womb, etc.



FIG. 210. DEADLY NIGHTSHADE.



FIG. 211. DOGWOOD.

Dogwood (*Cornus Florida*, Fig. 211). — This is a small tree growing most abundantly in the Middle States. The bark is used as a medicine. It is tonic, astringent, antiperiodic and stimulant.

It increases the frequency of the pulse and elevates the temperature of the body. It has been substituted for Peruvian bark in intermittent fevers. Dose of the powdered bark, from ten to sixty grains.

Preparations.—Fluid extract, dose, half a dram to two drams; solid extract, dose, five to eight grains; tincture, four ounces to a pint of alcohol, dose, one to three drams; infusion, two ounces to a pint of water, dose, half an ounce to two ounces; cornin, the active principle, dose, one to eight grains.

Dwarf Elder (*Aralia Hispida*).—A perennial under-shrub, growing from New England to Virginia. The bark of the root is diuretic and alterative. An infusion made from it is used in gravel, suppression of the urine, and dropsy; to be taken in wineglassful doses, three or four times a day.

Elder (*Sambucus Canadensis*).—The flowers, berries and inner bark of the elder are used in medicine. A warm infusion of the flowers is diaphoretic, and gently stimulant. A cold infusion is diuretic, alterative and cooling; used in erysipelas, liver affections of children, rheumatism, scrofula, and some syphilitic diseases. The bark, pounded with lard, forms a useful ointment for burns and scalds, and some diseases of the skin.

Elecampane (*Inula Helenium*).—This perennial plant is a native of Europe and Japan, and is cultivated in this country. The root is stimulant, tonic, diuretic and expectorant, and is used in chronic affections of the lungs and air-passages. It is said a decoction from the root forms a good application for the itch and other skin diseases. Dose of the powdered root, from a scruple to a dram; of the infusion, one fluid ounce

Electro-Magnetism.—Within a few years, electro-magnetism has been employed extensively as a remedial agent, particularly in the various forms of nervous disorders. That it is a valuable agent in the treatment of disease, few thinking physicians doubt; yet, like most other new things in medicine, it has had its enthusiastic admirers, who have claimed for it remedial powers beyond what it really has, and who have applied it to purposes beyond its sphere of usefulness.

Feverfew (*Pyrethrum Parthenium*).—In warm infusion, this herb is valuable in recent colds, flatulency, worms, irregular menstruation, hysterics, and suppression of the urine. The cold infusion is a tonic. A poultice made of the leaves soothes and alleviates pain.

Figwort (*Scrophularia Nodosa*).—The leaves and root are diuretic, alterative, and anodyne, and in some places are used in liver complaints, scrofula, dropsy, and diseases of the skin. Applied externally in the form of ointment, or fomentation, it is said to be useful in piles, painful tumors, bruises, ringworm, and inflammation of the breasts. Dose of the infusion, from two to three fluid ounces, three times a day.

Flaxseed (*Linum Usitatissimum*). — This is demulcent and nutritive, and is much used in coughs, bronchial diseases, inflammation of the urinary organs, bowels and lungs; chiefly taken in the form of flaxseed tea. The infusion is sometimes used as an injection in dysentery and piles. Linseed oil is prepared from flaxseed.

Foxglove (*Digitalis Purpurea*, Fig. 212).—A biennial plant, growing in the temperate parts of Europe. The leaves, in proper doses, are sedative and diuretic, reducing the pulse, and increasing the flow of urine. In large doses, they are a narcotic poison. The medicine has been much used in inflammatory diseases, palpitation of the heart, and in dropsy connected with diseased heart or kidneys. When taken for some time, it is liable to accumulate in the system, and suddenly to manifest poisonous and alarming symptoms, as if a large dose had been taken. The American hellebore is sometimes used in its place.

Dose of the powdered leaves of foxglove, from one to three grains; of the tincture, from eight to ten drops.



FIG. 212. FOXGLOVE.

Frostweed (*Helianthemum Canadense*). — This herb, also known by the name of rockrose, is tonic, astringent, and alterative, and has been considerably used in scrofula; combined with turkey-corn and queen's-root, it is said to have effected cures in secondary syphilis. A decoction forms a useful gargle in ulcerations of the mouth and throat in scarlet fever and other diseases, and as a wash in scrofulous inflammation of the eyes. Dose of the fluid extract, one to two drams, three or four times a day.

Galls. — These are the unhealthy excrescences found growing on the young boughs of the dyer's oak, *Quercus infectoria*, growing in Asia. They are powerfully astringent. In the form of infusion, or decoction, made in the proportion of half an ounce to a pint of water, they are useful as an astringent gargle, wash, or injection; and finely powdered galls, one part to eight parts of lard, make a valuable ointment for bleeding piles. Dose of powdered galls, from ten to fifteen grains.

Gamboge. — The hardened juice of trees growing in Siam and Cochin China. This gum-resin is a hydragogue cathartic, acting severely and harshly upon the bowels, and hence is not often used alone. On account of the severity of its action, it is improper to use it during inflammation of the stomach or bowels, piles, pregnancy, diseased womb, or excessive menstruation. Combined with cream of tartar and jalap, it is a valuable remedy in dropsy. The dose is one or two grains.

Garlic (*Allium Sativum*). — The bulb is the part used. It is stim-

ulant, diuretic, expectorant, and rubefacient; useful in coughs, hoarseness, whooping-cough, and in the nervous spasmodic coughs of children. Dose, from twenty grains to three drams; dose of the juice, mixed with sugar, half a teaspoonful to a teaspoonful.

The bruised bulbs are sometimes usefully applied as a poultice to the chests of young children having inflammation of the lungs, and as drafts to the feet in inflammation of the brain, fevers, etc.

Gentian (*Gentiana Lutea*). — It grows among the Alps, Apennines, and Pyrenees. The root is the part used, and is brought to this country from Germany. This medicine has long maintained its reputation, having, it is said, derived its name from Gentius, king of Illyria. It is a pure and simple bitter, exciting the appetite and invigorating the digestive powers. It may be used in all cases dependent on pure debility. It is much employed in dyspepsia, and during recovery from exhausting diseases.

Preparations. — Fluid extract, dose, half a dram to a dram; compound fluid extract, dose, half a dram to a dram; solid extract, dose, three to ten grains; tincture, four ounces to one pint of diluted alcohol, dose, two to three drams. A valuable preparation is made by uniting fluid extract of rhubarb, two ounces; fluid extract of gentian, half an ounce; diluted alcohol, two pints; dose, half an ounce to an ounce.

Ginger (*Zingiber Officinale*). — This is a native of Hindostan, and is cultivated in all parts of India. The root is the part used. It is a grateful stimulant and carminative, and is much used for dyspepsia, wind in the stomach, colic, gout, etc. It is an excellent addition to bitter infusions, and is much used to disguise the taste of nauseous medicines. Dose, from ten to twenty grains.

Preparations. — Fluid extract, dose, half a dram to a dram; tincture, four ounces to one pint of diluted alcohol, dose, two to four drams; infusion, dose, one to two ounces; syrup, dose, one to two drams.

Ginseng (*Panax Quinquefolium*, Fig. 213). — A perennial plant, growing in the Middle and Southern States. It is a mild tonic and stimulant, and has some reputation for improving impaired appetite, and for nervous debility, weak stomach, etc. Some persons are in the habit of chewing it, and it is considerably used in this way. Dose of the powdered root, from ten to forty grains; of the infusion, from two to three fluid ounces.



FIG. 213. GINSENG.

Glycerin. — This is the sweet or sugary portion of oils, and is obtained from them during the manufacture of lead plaster. It is demulcent and antiseptic, and has been recently recommended and used to some extent in place of cod-liver oil, in consumption. It has been still more used, however, as a soothing



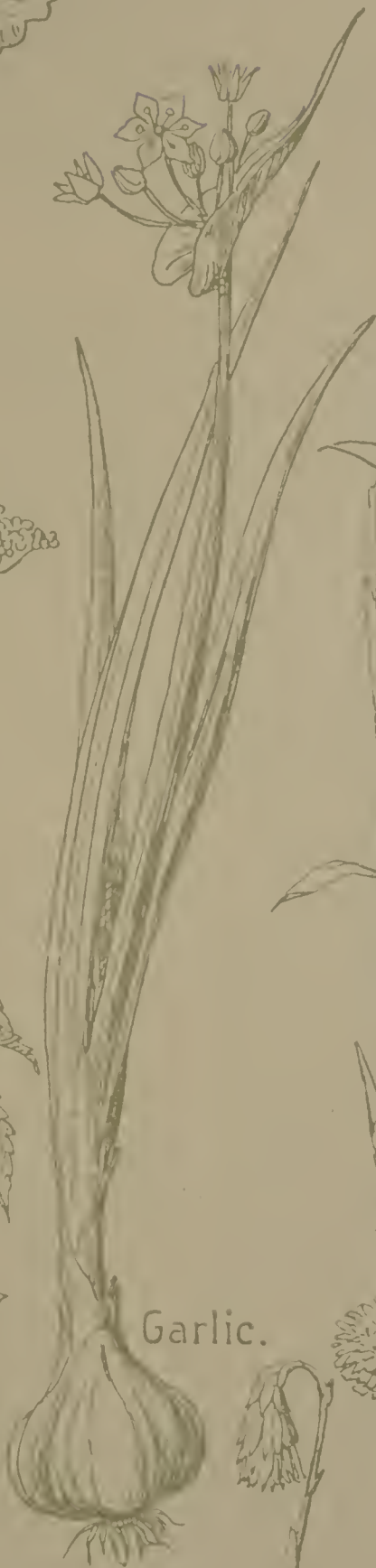
Dandelion.



Caraway.



Elder.



Garlic.



Ginger Root.



Coltsfoot.



Hops



Horsemint.



Horse Chestnut.



Hellebore.



Ground Ivy.



Horse-radish

and emollient external application in skin-diseases, and also in place of lard in the preparation of ointments.

Gold. — The chief salt of gold used in medicine is the chloride or muriate of gold and soda. It is diuretic and alterative. It is used in scrofula, skin diseases, goitre, scirrhus tumors, ophthalmia, dropsy and syphilis. Also in the Keeley cure for inebriates. It will, in many cases, take away the craving for liquor, but we think there is great danger of the patient becoming insane and having a desire to commit suicide. The dose is from one-thirtieth to one-twelfth of a grain, and is given dissolved in water, or made into pill with starch or gum-arabic.

Golden Seal (*Hydrastis Canadensis*, Fig. 214). — A perennial plant, growing throughout the United States, particularly in the West. The root is the medicinal part. It is a tonic, having especial action upon diseased mucous tissues, and is particularly beneficial during recovery from exhausting diseases. It is used in dyspepsia, chronic affections of the nervous coats of the stomach, erysipelas, and remittent, intermittent and typhoid fevers. United with geranium, it has a fine effect in chronic diarrhoea and dysentery.

Preparations. — Fluid extract, dose, half a dram to two drams; solid extract, dose, two to three grains; hydrastin (resinoid), dose, one-half to three grains; hydrastin (neutral), dose, two to five grains; hydrastina (alkaloid), dose, one to three grains; tincture, three ounces to one pint of diluted alcohol, dose, from half an ounce to an



FIG. 214. GOLDEN SEAL.

ounce. For various forms of sore mouth and ulcerated sore throat, the following is a useful gargle: fluid extract of golden seal, half an ounce; fluid extract of blue cohosh, half an ounce; fluid extract of witch-hazel, half an ounce; pulverized alum, one dram; honey, three drams; water, one pint. As a stimulant for a sluggish liver, and as a tonic in enfeebled mucous membrane in epidemic dysentery, and other complaints, the following powders are valuable: hydrastin, twenty grains; leptandrin, twelve grains; podophyllin, two grains; pulverized cayenne, two grains; sugar of milk, or pulverized loaf-sugar, one dram; rub together thoroughly in a mortar, and divide into twenty powders; give one every two hours.

Ground Ivy (*Nepeta Glechoma*). — A perennial herb, common to the United States and Europe; in some places known as *gill-over-the-ground*. The leaves are the part used, which are stimulant, tonic,

and pectoral ; considered useful in jaundice, asthma, and diseases of the kidneys and lungs.

Guaiacum.— This medicine is the shavings or chips of the wood of a tree growing in the West Indies, also resin obtained from the same tree. It is stimulant and alterative, and is used in chronic rheumatism, diseases of the skin, scrofula, and venereal complaints. The tincture of the resin is valuable as an emmenagogue. Dose of the tincture, from one-half to two teaspoonfuls, to be taken with milk. The wood is much used as an ingredient in alterative preparations of sarsaparilla, etc.

Gum-Arabic.— This is the hardened sap of trees growing in Egypt, Arabia, and other tropical countries, being several varieties of the acacia. It is demulcent, and a combustive nutritive, and is much used in forming mixtures for hoarseness, cough, sore throat, gonorrhœa, inflammation of the bladder, strangury, bronchitis, and irritations of mucous membranes generally. Mucilage of gum-arabic is a preparation made by dissolving four ounces of powdered gum in a pint of boiling water.

Gum, Hemlock.— This is the hardened juice of the hemlock, *Abies Canadensis*, a tree growing in Canada and Maine. This gum is a mild rubefacient, and like burgundy pitch, chiefly used to make plasters, etc., for which purpose it is very valuable. A tincture of the gum is diuretic and stimulant. The oil of hemlock is valuable, in combination with other oils, in preparing liniments. The bark is astringent, and is much used in tanning leather.

Hæmastasis.— This word is used to imply the retention of the venous blood in the limbs by ligatures. A cord or common handkerchief is tied round the upper part of the arms, or thighs, and a piece of wood being slipped under the cord, is twisted round until the cord is so tightened as to prevent the return of the venous blood, but not to prevent the outward passage of the arterial blood. In this way, the blood passing out continually in the arteries, and not returning by the veins, the vessels of the limbs become filled to their utmost capacity, and a great quantity, for the time being, is withdrawn from the trunk. This process is useful in bleedings from the lungs, stomach and womb, and inflammation of the brain, lungs, bowels, etc., and in whatever case it may be thought desirable, for the time being, to lessen the blood in the head or trunk, without debilitating the patient.

Hair-cap Moss (*Polytrichum Juniperum*).— An evergreen plant growing on poor, sandy soils in the Northern States. A strong infusion of it is powerfully diuretic. In dropsical cases, two fluid ounces of the infusion should be taken every half hour. It is useful in fevers, inflammations, gravel, etc.

Hardhack (*Spiræa Tomentosa*, Fig. 215).— This is a beautiful shrub, common in the United States. Its leaves are of a dark green color above, and white underneath. It is tonic and astringent, and is much used in chronic diarrhœa, cholera infantum, etc. It agrees well with the stomach, and is deservedly a popular remedy in summer complaints of children.

A fluid extract of it is the best preparation; dose, four to twenty drops. It is much used in the form of infusion. The green herb boiled in milk forms a valuable preparation in chronic diarrhœa, when attended with much debility.

Hardleaf Golden-Rod (*Solidago Rigida*).— A perennial plant, growing throughout the United States, especially on the western prairies. It is tonic, astringent and styptic, and useful to arrest bleeding from the nose, lungs, stomach, and bowels. The powder and infusion are used, both externally and internally.



FIG. 215.
HARDHACK.

Helonias (*Helonias Dioica*).— This herb is common in the United States, and is known by the name of *false unicorn* plant. The root, which is the part used, is tonic, diuretic, and vermifuge. In large doses it is emetic, and when used fresh, sialagogue. In five or seven grain doses, three times a day, it relieves dyspepsia, restores the appetite, expels worms, and relieves colic. It is a valuable womb-tonic, gradually removing debility of that organ, and curing whites, painful menstruation, and a tendency to habitual abortion. Dose of the decoction, from two to four fluid ounces. The decoction is said to kill insects, bugs, etc.

Preparations. — Fluid extract, dose, one to three drams; helonin, the active principle, dose, one-fourth to one-half a grain.

Henbane (*Hyoscyamus Niger*, Fig. 216).— This plant grows abundantly in Great Britain, and on the continent of Europe, and is rare in this country. All the parts are active. It is narcotic, gently accelerating the circulation, increasing the general warmth, occasioning a sense of heat in the throat, and after a time inducing sleep. It is often used in the place of opium, because it does not bind the bowels. Used in rheumatism, gout, bronchitis, asthma, consumption, whooping-cough, hysterics, and spasmodic affections generally.



FIG. 216. HENBANE.

Preparations. — Fluid extract, dose, ten to fifteen drops; solid extract, dose, half a grain to a grain; tincture, two ounces to one pint of diluted alcohol, dose, half a dram to a dram; hyoscyamin, the active principle, dose, one-eighth to half a grain. In neuralgia, rheum-

atism, St. Vitus's dance, painful menstruation, etc., the following may be found useful: solid extract of hyoscyamus, two drams; solid extract of valerian, two drams; solid extract of aconite, one dram; sulphate of quinia, one dram. Mix, and divide into two-grain pills; one pill every two or three hours.

High Cranberry (*Viburnum Opulus*).—This shrub grows in rich soils in Canada, and in the northern United States. The bark, which is the medicinal part, is antispasmodic, being used in cramps, spasms, asthma, hysterics, and is useful for those who are subject to convulsions during pregnancy, and at the time of childbirth. It is popularly known by the name of *cramp-bark*. A decoction or infusion of the bark may be used in tablespoonful doses, two or three times a day. Dose of the extract, from one to three grains; in womb troubles, it may be united with caulophyllin, cimicifugin, aletridin, senecin, and asclepidin; and in flatulent colic, spasmodic pains of the stomach and bowels, it may be combined with dioscorein.

Horehound (*Marubium Vulgare*, Fig. 217).—This well known perennial herb is a native of Europe, and has become naturalized in this country. It is tonic, aperient, pectoral, and sudorific. It is deservedly popular in domestic practice, for colds, asthma, throat-ails, bronchitis, and other pectoral affections, attended with cough. It is much used in candy.



FIG. 217.
HOREHOUND.

Preparations.—Fluid extract, dose, half a dram to one dram; solid extract, dose, five to eight grains; tincture, two ounces to one pint of alcohol, dose, half an ounce to an ounce; syrup, three ounces fluid extract to one pint of simple syrup, dose, three to five drams.

Hops (*Humulus Lupulus*).—The cones of this well-known plant are tonic, hypnotic, antilithic, and anthelmintic. They are chiefly used for promoting sleep, and relieving pain and irritability of the nervous system. Hops are valuable in the form of fomentation, either alone or in combination with boneset and other bitter herbs. An ointment of hops and stramonium leaves is sometimes used in salt-rheum, and upon painful tumors and ulcers. A pillow stuffed with hops, dipped in hot water, and placed under the head of the patient, relieves pain and procures sleep.

Lupulin is the yellow powder obtained by threshing the hops, and is preferable to the hop itself. It is a powerful antaphrodisiac, composing the genital organs, and quieting painful erections, in gonorrhœa, etc.

Preparations.—Fluid extract, dose, half a dram to a dram; solid extract, dose, five to fifteen grains; tincture, two and half ounces to one pint of alcohol, dose, three to five drams; infusion, four drams to

one pint of water, dose, two to three ounces; lupulin, dose, six to eight grains; tincture of lupulin, two ounces to one pint of alcohol, dose, one to two drams, in sweetened water; fifteen to twenty grains of lupulin, well rubbed up with white sugar in a mortar, is very efficacious in priapism, chordee, and spermatorrhœa.

Horsemint (*Monarda Punctata*). — This well-known plant, which is common to the United States, is stimulant, carminative, and diuretic. A warm infusion may be used in flatulence, nausea, and vomiting. If the body be kept cool while taking it, it will act as a diuretic. The oil of horsemint is used for similar purposes with the plant. Dose, from two to five drops on sugar. Dose of the essence, from ten to twenty drops in sweetened water. The oil is frequently used as an ingredient in liniments.

Horseradish (*Cochlearia Armoracia*). — The fresh root of this well known perennial is stimulant, diuretic, antiscorbutic, and rube-facient. It is useful in rheumatic, paralytic, scorbutic, dropsical, and dyspeptic affections. It is said that a warm infusion of the fresh root in cider, drunk freely every night, will cause perspiration and a free flow of urine, and will consequently cure dropsy. The fresh root grated in vinegar, and eaten with meat at dinner, strengthens the stomach and promotes digestion.

Houseleek (*Sempervivum Tectorum*). — The bruised leaves of this perennial form a cooling application to burns, stings of insects, erysipelas, and other inflammations; valuable also for ringworm, shingles, and other skin diseases.

Hydrangea (*Hydrangea Arborescens*). — This grows abundantly in the Southern, Middle, and Western States. Its root is medicinal. It is diuretic, and has been much praised for its power of relieving the excruciating pain caused by the passage of stone through the urethra, as well as for infallibly removing such stones from the bladder, provided they are not already too large for passage through the water-pipe. A concentrated decoction or the fluid extract may be taken in teaspoonful doses several times a day, — care being taken not to push the medicine to the extent of dizziness or oppression of the chest.

Hyssop (*Hyssopus Officinalis*). — This is a native of the continent of Europe, and is cultivated in this country. The tops and leaves are the parts used. They are stimulant, aromatic, carminative, and tonic. The infusion has been much employed in chronic bronchitis of old people, and those of debilitated habits. It makes the raising of mucus more easy. The infusion may be combined with sage and alum, and sweetened with honey. The fresh leaves bruised, and applied externally, relieve the pain and disperse the spots and marks caused by contusions.

Iceland Moss (*Cetraria Islandica*). — This plant is found in the northern latitudes, both of the old and new world, and is abundant on the mountains and in the sandy plains of New England. It received its name from its prevalence in Iceland, in which country, as well as in Lapland, it serves, in consequence of the gum and starch it contains, as food for the inhabitants. It is demulcent, tonic, and nutritious, and is well fitted to relieve affections of the mucous membranes of the lungs and bowels, connected with debility of the digestive organs; it is given therefore in chronic bronchitis and other affections of the chest, attended with copious expectoration, especially when the matter discharged is purulent; also in dyspepsia, chronic dysentery, and diarrhœa. It is usually employed in the form of decoction; and is much used in the common article of diet called blanc-mange.

Ice-Plant (*Monotropa Uniflora*). — This perennial plant, found in various parts of the country, is snow-white, resembling frozen jelly, and is juicy and tender, dissolving in the hands like ice. The flowers are in shape like a pipe; hence it is called the pipe-plant. The root is the medicinal part, and is tonic, nervine, and antispasmodic. It has also been considered sedative and diaphoretic; and the powder has been sometimes used in the place of opium. It is said to be valuable in epilepsy, chorea, and other spasmodic affections. Dose of the powdered root, from thirty to sixty grains, two to three times a day.

Indian Hemp (*Apocynum Cannabinum*). — This perennial plant resembles bitter-root, and grows in similar situations. The root is powerfully emetic, and in decoction, diuretic and diaphoretic. It diminishes the frequency of the pulse, and produces drowsiness. It has great efficacy in dropsy.

Preparations. — Fluid extract, dose, as a tonic, five to ten drops; as an emetic, twenty to twenty-five drops; solid extract, dose, one to three grains; tincture, dose, one to two drams, as a tonic, half an ounce to an ounce, as an emetic; infusion, half an ounce to a pint of water; dose, half an ounce to an ounce.

Indian Turnip (*Arum Triphyllum*). — This is a perennial plant, growing in damp places in North and South America, and known by the name of dragon-root. The root when chewed is excessively acrid, producing a biting sensation which may be somewhat relieved by milk. The fresh root is acrid, expectorant, and diaphoretic, and has been used in asthma, whooping-cough, chronic bronchitis, chronic rheumatism, and colic, and externally in scrofulous tumors, scald head, and other skin disorders. Dose of the grated root, in syrup or mucilage, ten grains, three or four times a day.

Iodine (*Iodinum*). — This is prepared from the ashes of kelp, or sea-weed, and is in small bluish-black, shining scales. It is alterative,

tonic, and somewhat diuretic. It has been chiefly employed in diseases of the absorbent and glandular system, particularly scrofula, goitre, and glandular tumors generally. Dose, in substance, half a grain, two or three times a day, in form of pill; in form of tincture, three to five drops.

Iodide of Potassium (*Potassii Iodidum*). — This is one of the preparations of iodine, and is sometimes improperly called *hydriodate of potassa*. It is formed by decomposing the iodide of iron by carbonate of potassa. It is used for the same purposes as iodine, but chiefly as an alterative in tertiary syphilis, for which it is a specific; also in some forms of chronic rheumatism, and in leprosy. Dose of the salt, from two to fifteen grains. It is much combined with bitter tinctures, and particularly with the compound preparations of sarsaparilla, yellow dock, and queen's-root. The acids and metallic salts are incompatible with it.

Ipecacuanha. — This is a small perennial plant, growing in moist woods, in several countries of South America. The root is the part used. It is a very valuable emetic, in large doses; in smaller doses, it is sudorific and expectorant. Used to produce vomiting in the commencement of fevers, inflammatory diseases, swelled testicles, and before the paroxysms of ague; and to excite nausea in dysentery, asthma, whooping-cough, various hemorrhages, and inflammation of the lungs; and, combined with opium, to produce diaphoresis in rheumatism, gout, and febrile complaints. Dose, as an emetic, from fifteen to thirty grains; to excite nausea, from one to three grains; and to produce diaphoresis, two to six grains, with one grain of opium.

Preparations. — Fluid extract, dose, as an expectorant, five to eight drops; as an emetic, half a dram to a dram; tincture, half an ounce to an ounce; wine of ipecac, three ounces to one pint of sherry wine, dose, a quarter to half a dram, as an expectorant; two and a half to three drams as an emetic. The following is a useful expectorant for young children: fluid extract of ipecac, two drams; syrup of tolu, five drams; mucilage of gum-arabic, one ounce; sherry wine, three drams, — mix. Dose, one dram.

Iron (*Ferrum*). — As this is the most abundant, so is it the most useful of all the metals. It is widely diffused through the mineral, the vegetable, and the animal kingdoms. It is an essential constituent in the blood of man, and as a medicine it has great value, being a powerful tonic. In most cases where the blood is thin and reduced, iron is our best remedy; it raises the pulse, promotes the secretions, and gives color, body, and nutritive qualities to the blood. It is much used, in some one of its prepared forms, in chronic anæmia, chlorosis, hysterics, whites, rickets, chorea, dyspepsia, neuralgia, and particularly consumption. Care should be taken in using the various preparations of iron, not to let the remedy touch the teeth. It is

well to take them, when not in pill form, through a glass tube. The following are most of the chemical preparations of iron used in medicine:—

Ammonia-Citrate of Iron (*Ferri Ammonio Citras*).—This is in the form of thin scales, of a beautiful garnet-red color, and has a slightly acid taste. It is very soluble in water. Its great solubility gives it some advantage over the citrate. The dose is five grains, three times a day, in solution.

Black Oxide of Iron (*Ferri Oxidum Nigrum*).—This is a dark, grayish-black powder, unchangeable in the air, and having magnetic properties. It is a valuable chalybeate, and may be given in five to ten-grain doses.

Citrate of Iron (*Ferri Citras*).—This is a valuable preparation of iron. It is soluble in water. Usually given in the form of pill, in two to three-grain doses, three times a day.

Citrate of Iron and Quinia (*Ferri et Quiniæ Citras*).—In the form of shining scales, garnet-colored, and soluble in water. An excellent antiperiodic and tonic. Given in intermittents, when the blood is low, etc. Dose, five to eight grains, two or three times a day.

Citrate of Iron and Strychnia.—It is a valuable preparation, and combines the properties of iron and strychnia, and has proved an efficacious remedy in atonic dyspepsia, absence of the menses, St. Vitus's dance, green-sickness, hysterics, etc. It is a beautiful salt, looking like citrate of iron, except that it is a little darker. Three grains of the iron are combined with one-sixteenth of a grain of strychnia.

Hydrated Oxide of Iron (*Ferri Oxidum Hydratum*).—This is in a reddish-brown, moist mass, not much used in medicine, except as an antidote to the poison of arsenic, for which it is very valuable. It should be given in tablespoonful doses, often repeated.

Iodide of Iron (*Ferri Iodidum*).—The iodide of iron is a crystalline substance, of a greenish-black color and styptic taste. It has tonic, alterative, diuretic, and emmenagogue properties. It is employed chiefly in scrofulous complaints, swelling of the glands of the neck, chlorosis, absence of the menses, and leucorrhœa. In obstinate syphilitic ulcers, and in secondary syphilis, occurring in scrofulous and debilitated subjects, it has been used with success. Dose, three grains, gradually increased to five. It should never be given in the form of a pill, but preferably in combination with simple syrup (see Syrup of Iodide of Iron).

Lactate of Iron (*Ferri Lactas*).—This has the general medicinal properties of the ferruginous preparations. It increases the appetite in a marked degree, and has been used with decided benefit in chlo-

rosis. Dose, one to two grains, three times a day. The dose may be gradually increased. Given in the form of solution, pill, or lozenge.

Phosphate of Iron (*Ferri Phosphas*).—This is a slate-colored powder, insoluble in water. It is a valuable remedy in consumption, cancer, and nervous diseases, accompanied by a low state of the blood. Dose, one or two grains, three times a day.

Persalt of Iron (*Monsei's Styptic*).—This is a most valuable styptic, and is used with success in restraining violent bleedings. It produces no irritant effects upon the tissues, and may be used with safety both in slight and extensive surgical operations. Physicians should have it by them, and will find it very serviceable in sudden emergencies of bleeding. It is prepared in solution and in the form of dry salt. The solution is the most convenient and eligible form, and may be applied as prepared.

Powder of Iron (*Ferri Pulvis*).—This is what is often called iron by hydrogen, or Quévenne's iron. It is an impalpable powder, and of an iron-gray color. If black, it is worthless. It is used in anæmia, and in all those conditions characterized by deficiency of coloring-matter in the blood. The best metallic iron for medicinal use. Dose, from two to five grains, several times a day; to be given in the form of pill.

Precipitated Carbonate of Iron (*Ferri Subcarbonas*).—This is a reddish powder, insoluble in water. It is tonic, alterative, and emmenagogue, and is used in neuralgia, chorea, chlorosis, anæmia, epilepsy, scrofula, etc. Dose, five to twenty grains, three times a day, to be taken in a little water.

Protoxide of Iron (*Ferri Protoxidum*).—This is of a dark-blue color, and has a tendency to absorb oxygen from the air, which converts it into the sesquioxide. It is a valuable preparation of iron. Dose, from two to five grains, three times a day.

Solution of Protoxide of Iron.—The protoxide of iron is more readily absorbed and assimilated, and agrees better with the stomach than any other preparation of this metal. It is prepared in the form of a syrup, of which the dose is from one to two teaspoonfuls, three times a day.

Solution Protoxide Iron, with Rhubarb and Colombo.—This is a composition of protoxide of iron with vegetable tonics. As a remedy in many forms of dyspepsia, it must prove of great value.

Solution Protoxide Iron, with Quinine.—This has become a remedy of established reputation. Quinine combined with iron, particularly with the protoxide, must have great advantages as a chalybeate tonic. Each tablespoonful contains half a grain of quinine.

Solution Protoxide of Iron, with Iodide of Potassa. — In this preparation the valuable alterative properties of iodide of potassium are connected with iron. It is therefore alterative and tonic, and may be used in scrofulous and other weakened conditions of the system. It is a remedy of decided merit. Three grains of the iodide of potassium are contained in each tablespoonful.

Sulphate of Iron (*Ferri Sulphas*). — This is in the form of transparent crystals, of a pale, bluish-green color, and efflorescent in the air. It has a styptic taste, and is soluble in about twice its weight of cold water, but insoluble in alcohol. It is astringent and tonic. In large doses it produces nausea and griping of the bowels. Useful in scrofula and as an astringent in passive hemorrhages, sweats, diabetes, chronic mucous catarrh, leucorrhœa and gleet. As a tonic it is useful in dyspepsia.

Syrup of Iodide of Iron (*Syrupus Iodidi Ferri*). — This is an elegant preparation of iodine and iron, and is given in all debilitated conditions of the system, when there is a taint of scrofula. Dose, from twenty to sixty drops, well diluted, at the moment of taking, with water.

Syrup of Iodide Iron and Manganese. — This is of a light straw-color, prepared from protosulphate of iron, protosulphate of manganese, and iodide of potassium. It is a remedy of unsurpassed efficacy in anæmic, scrofulous, syphilitic, and cancerous affections. It is considered superior to the syrup of iodide of iron. Dose, from ten to thirty drops.

Tartrate of Iron and Potassa (*Ferri et Potassæ Tartras*). — This is in the form of beautiful shining scales, of a dark ruby color, of a slightly chalybeate taste, and very soluble in water. It is one of the mildest of the salts of iron, and is considerably used in scrofula, weakness of the bowels, general debility, etc. It is much used as a remedy for syphilis, both externally and internally. The dose is ten to twenty-five grains in solution.

Tincture of Muriate of Iron (*Tinctura Ferri Chloridi*). — This has a reddish-brown, yellowish color, a sour and very styptic taste, and an odor like muriatic ether. It is one of the most active and certain preparations of iron, generally agreeing with the stomach, and much employed for purposes for which iron is used. It is useful in scrofula, gleet, and leucorrhœa; also in hemorrhages from the womb, kidneys, and bladder, of a passive character. Dose, from ten to twenty-five drops, gradually increased to one or two drams, two or three times a day. It should be given diluted with water.

Valerianate of Iron. — This salt is in the form of a dark-red powder, having a faint odor, and a taste of valerianic acid. It is soluble in alcohol, and insoluble in water. Given in hysterical affections, complicated with chlorosis. Dose, one grain, several times a day.

Isinglass (*Ichthyocolla*). — A gelatinous substance, prepared from the bladder of fishes. It is soluble in alkaline solutions and diluted acids. In boiling it dissolves and forms a jelly upon cooling, in which form it is chiefly used as a nutritive diet for the sick.

Jalap (*Ipomœa Jalapa*). — This is a Mexican plant. Its root is an active cathartic, producing liquid stools, more or less griping. United with cream of tartar it becomes a hydragogue, and is useful in dropsy. The dose is from fifteen to twenty-five grains.

Preparations. — Fluid extract, dose, a quarter to one dram; solid extract, dose, three to five grains; tincture, two ounces to the pint of diluted alcohol, dose, one to two drams; jalapin, the active principle, dose, one to two grains.

Juniper (*Juniperis Communis*). — This evergreen shrub is a native of Europe, and is naturalized in some parts of this country. The berries, which are the parts used, are wrinkled, of a dark-purple color, about the size of a pea. They are gently stimulant and diuretic, and have been used in scurvy and inflammation of the bladder, chiefly in connection with more active diuretics. The oil of juniper obtained from the berries is used for similar purposes. Five minims of the oil mixed with one fluid dram of sweet spirits of nitre, and given three times a day, is valuable in dropsy. Dose of the berries, from one to two drams; of the oil, from five to ten drops.

Kino. — This is the hardened juice of an East Indian tree, *Pterocarpus Marsupium*. There are several varieties of it. It is a powerful and valuable astringent, and is much used in diarrhœa, not attended with inflammation. Opium is often united with it, and it is a favorite addition to chalk-mixture. It is also used in chronic dysentery, leucorrhœa and diabetes. It may be used in the form of powder, infusion, or tincture. Dose of the powder, ten to twenty grains; of the tincture, one or two fluid drams; the infusion is useful as an injection in leucorrhœa and gonorrhœa. The powder is sometimes sprinkled with advantage on indolent and flabby ulcers.

Ladies' Slipper (*Cypripedium Pubescens*, Fig. 218). — The fibrous roots are the parts used of this plant. It is tonic, nervine, and anti-spasmodic, and is employed in nervous headache, and other nervous affections, as excitability, hysterics, neuralgia, etc.

Preparations. — Fluid extract, dose, half a dram to a dram; solid extract, dose, five to ten grains; tincture, two ounces to a pint of diluted alcohol, dose, half an ounce; cypripedin, the active principle, dose, two to three grains. The following is a useful preparation for producing sleep, in wakeful and excited conditions: fluid extract ladies' slipper, one ounce; fluid extract pleurisy root, one ounce;



FIG. 218.
LADIES' SLIPPER.

fluid extract skunk-cabbage, one ounce; fluid extract, scullcap, one ounce; mix; dose, half a dram to a dram, three times a day.

For sick and nervous headache, dependent on an acid stomach, the following is useful: fluid extract ladies' slipper, half an ounce; fluid extract catnip, half an ounce; fluid extract scullcap, half an ounce; water, one pint; mix; dose, one and a half to three drams.

Lead (*Plumbum*). — Lead acts upon the system as a sedative and astringent. Internally, it is used for the purpose of reducing the force of the circulation, and for restraining improper bleeding and other excessive discharges. Externally, it is employed to subdue inflammation. It should not be excessively used, for, if taken internally for a long time, it injures the nervous system, and brings on apoplexy, palsy, and particularly lead colic. Nature generally gives notice when it is doing mischief, by drawing a *blue line around the edge of the gums*. The preparation of lead chiefly used in medicine is the following: —

Acetate of Lead (*Plumbi Acetas*). — This is known by the name of *sugar of lead* and is a white salt, crystallized in brilliant needles. It has first a sweetish, and then an astringent taste. In medicinal doses, it is a powerful sedative and astringent; in large ones an irritant poison. It is principally used internally for bleeding from the lungs, bowels, and womb. The dose is generally two grains, united with half a grain to a grain of opium, in the form of pill. Externally, it is employed in form of solution and applied to inflamed surfaces with cloths. Four grains of sugar of lead and four of pulverized opium to the pint of water, make a good lotion for various purposes.

Lemon (*Citrus Limonum*). — This is a well-known tropical fruit, the juice of which has a grateful acid taste, and is much used in fevers and inflammatory complaints, forming the agreeable drink called lemonade. The oil of lemon, obtained from the fresh rind of the fruit, is chiefly used in perfumery, and to render the taste of medicines more agreeable.

Lettuce (*Lactuca Sativa*). — The medicinal properties of this garden-plant are contained in the milk. It is given when opium disagrees with the patient, to allay cough and irritability. It is one of the most wholesome vegetables for the table.

Preparations. — Fluid extract, dose, half a dram to two drams; solid extract, dose, two to five grains. The following is a useful compound syrup: fluid extract lettuce, two ounces; fluid extract poppy, four ounces; simple syrup, ten ounces; mix; dose, half a dram to a dram.

Life-Root (*Senecio Aureus*). — This is a perennial plant, growing on the banks of marshy creeks in the Northern and Western States, and sometimes called *ragwort*. Both the root and herb are diuretic,

pectoral, diaphoretic, and tonic, considerably valued as a remedy in gravel and other urinary affections, particularly strangury. It is useful for promoting menstrual discharges.

Preparations. — Fluid extract, dose, half a dram to a dram; infusion, dose, one to three ounces; senecin, the active principle, dose, three to five grains. For chlorosis, accompanied by absence of the menses, the following is a useful preparation: senecin, aletrin and sulphate of iron, four grains each. Mix and divide into two-grain powders. Six grains each of senecin and geraniin, mixed and taken in doses of two to four grains, has a good effect in restraining an immoderate flow of the menses. In painful menstruation, the following is a good pill: senecin, two grains; quinine, six grains; solid extract belladonna, three grains; make into ten pills, and take one every three hours till the pain is subdued.

Lime (*Calx*). — This is one of the alkaline earths, and is an abundant natural production. It is used in several forms in medicine, of which the following are the chief: —

Chloride of Lime (*Calx Chlorinata*). — This is a moist, grayish-white substance, having the odor of chlorine, and possessing powerful bleaching properties. Externally used, it is disinfectant, and, dissolved in water, is applied with advantage to ill-conditioned ulcers, burns, chilblains and eruptions of the skin; also as a gargle in putrid sore throat, and as a wash for ulcerated gums, and to purify the breath. It has been used with advantage in dysentery, both by mouth and injection, to correct the fetor of the stools.

Lime-Water (*Aqua Calcis*). — This is made by dissolving four ounces of lime in a gallon of water, and letting the solution stand in a covered vessel, and pouring off the clear liquor when it is wanted for use. It is antacid, antilithic, tonic, and astringent, valuable in all complaints attended with acidity of the stomach. United with milk, and used as the sole diet, it is sometimes the only remedy for chronic diarrhœa of long standing. Dose of lime-water, half an ounce to an ounce.

Liquorice (*Glycyrrhiza Glabra*). — This grows in the south of Europe and Asia. The root is the part used. It is demulcent and expectorant, and is useful in cough, chronic bronchitis, and irritations of the mucous surfaces generally. The pulverized root united with an equal amount of sulphur and a little molasses, is a valuable preparation for coughs. The black extract may be used for the same purposes as the root.

Liverwort (*Hepatica Americana*). — An indigenous plant, growing in woods, upon the sides of hills and mountains. The leaves withstand the cold of winter, and the flowers appear early in the spring. The whole plant is medicinal. It is a mild demulcent tonic and

astringent, and has been used in fevers, liver-complaints, bleeding from the lungs, and coughs.

Preparations. — Fluid extract, dose, two to three drams; infusion, four ounces to the pint of water, to be taken freely.

Lobelia (*Lobelia Inflata*, Fig. 219). — This weed grows throughout the United States; both its seeds and leaves are used in medicine. The plant is emetic, expectorant, sedative and antispasmodic. As an emetic it is generally used in combination with other articles for that purpose. It is of great advantage in spasmodic asthma, as well as in bronchitis, croup, whooping-cough, and other throat and chest affections. Whenever relaxation is required to subdue spasm, or for other purposes, lobelia will be found useful.



FIG. 219. LOBELIA

Preparations. — Fluid extract, dose, as an expectorant, ten to fifty drops; as an emetic, one-fourth of a dram to a dram; tincture, two ounces to a pint of diluted alcohol, dose, as an expectorant, one to three drams, as an emetic, half an ounce; infusion, dose, an ounce every half hour till vomiting ensues; lobelin, the active principle, dose, half a grain to a grain and a half. The following mixture will be found excellent, as an expectorant and sudorific in spasmodic croup, whooping-cough and asthma, and for subduing mucous inflammation about the throat and air-passages: tincture of lobelia, half an ounce; tincture of bloodroot, two ounces; oil of spearmint, half a dram; empyreumatic syrup, five ounces; dose, half a dram every two hours. A poultice made of lobelia, elm-bark and weak lye, relieves sprains, bruises, rheumatic pains, erysip- elatous inflammations and poison from ivy or dogwood.

Logwood (*Hæmatoxylon Campechianum*). — This tree is a native of tropical America. The wood is used in medicine. It is tonic and astringent, and is used with advantage in diarrhœa, dysentery, and in the relaxed state of the bowels after cholera infantum. Used freely with other treatment, it also benefits constitutions broken down by disease or dissipation.

Preparations. — Fluid extract, dose, half a dram to a dram; solid extract, dose, five to twenty grains; infusion, half an ounce to a pint of water, dose, four drams every three or four hours, in diarrhœa.

Magnesia (*Magnesia Usia*). — Calcined magnesia is obtained from carbonate of magnesia, by exposure to a strong heat. It is a white, inodorous, light powder, of a feeble alkaline taste. It is antacid and laxative, and is much used in dyspepsia, sick headache, gout, and in other complaints attended with sour stomach and costiveness; likewise a favorite remedy in complaints of children. Dose, as a laxative, from thirty to forty grains; as an antacid or antilithic, ten to twenty-five grains, once or twice a day.

Carbonate of Magnesia (*Magnesiæ Carbonas*). — This is prepared from sulphate of magnesia, by carbonate of soda. It is antacid, and when it meets with acid in the stomach and bowels it is laxative.

Sulphate of Magnesia (*Magnesia Sulphas*). — Obtained from seawater. This is the well-known *Epsom salts* and is purgative and diuretic. Used in all cases which require purgatives. It generally operates without griping, and, when united with an acidulated infusion of roses, will remain on the stomach when all other things are rejected. The less it is diluted the better and more easily it operates, provided a draught of warm water be taken an hour afterwards. It may be made to act as a diuretic by keeping the skin cool, and walking about after it has been taken.

Male Fern (*Aspidium Filix Mas*). — This perennial plant is found in both Europe and America, also in Asia and northern Africa. The root, which is the medicinal part, should be gathered during summer, as the active principle is more abundant at that season than any other. It is also said to deteriorate by age, and become nearly worthless in two years. It is slightly tonic and astringent, but its chief value consists in its power to destroy and expel the tapeworm.

Preparations. — Solid extract, dose, nine to twelve grains. The following compound pills are adapted to the destruction of the tapeworm: solid extract male fern, two scruples; gamboge, fourteen grains; calomel, fourteen grains; scammony, eighteen grains. Mix, and divide into twenty pills. Dose, two to three pills.

Mandrake (*Podophyllum Peltatum*, Fig. 220). — This is exclusively an American plant. The root is the medicinal part. It is cathartic, alterative, anthelmintic, hydragogue, sialagogue, and, in large doses, emetic. It stimulates and quickens the action of the liver and kidneys, promotes expectoration and determines the blood to the surface. Combined with cream of tartar, it produces watery stools and is useful in dropsy. It is used in jaundice, dysentery, diarrhoea, bilious, remittent, and intermittent fevers, puerperal fever, typhoid fever, and all glandular enlargements. But it has a more particular action upon the liver, and is especially useful in derangements of that organ.



FIG. 220. MANDRAKE.

The severity of its action seems to be the only objection to its very extensive use. Its harshness, however, may be much lessened by its combination with alkalies, ginger, or caulophyllin.

Preparations. — Fluid extract, dose, half a dram to a dram; compound fluid extract, dose, one to two drams; solid extract, dose, three to twelve grains; tincture, three and a half ounces to one pint of alcohol, dose, one to three drams; podophyllin, the active principle,

dose, as an alterative, one-eighth to a quarter of a grain; as a cathartic, one to two grains.

Manna. — This is the concrete juice of the tree called *Ornus Europæa*, growing in Sicily, Calabria, and Apulia, as well as of several other species of tree. Manna is a gentle laxative, operating mildly, though sometimes producing wind and pain. It is considerably used as a gentle physic for children and women in the family way. The usual way of prescribing it is in connection with senna, rhubarb, magnesia, or the neutral salts. Being sweet, it conceals the taste of these remedies in some measure, while it adds to their purgative effect. Dose of manna, for a grown person, from one to one and a half ounces; for a child, from one to four drams, according to age.

Marsh-Rosemary (*Statice Caroliniana*). — This plant grows on the coast from Maine to Georgia. The root of it is the medicinal part. A decoction of it is much used in diarrhœa, dysentery, etc., also as a gargle in ulcerated sore mouth and the throat affection of scarlet fever, and as an injection in gleet, whites, and falling of the womb and bowel. Dose of the decoction, one or two tablespoonfuls every hour or two.

Marshmallow (*Althæa Officinalis*, Fig. 221). — A perennial plant, growing in salt marshes and other moist places in Europe. The root is the medicinal part, and its properties are those of a demulcent. A decoction of it is used in irritations and inflammations of mucous membranes, as in inflammation of the lungs, stomach, bowels and bladder, and some affections of the kidneys. The powdered root, and also the leaves and flowers, are sometimes employed in the form of poultice.



FIG. 221.
MARSHMALLOW.

Mastic. — This is the hardened gum or resin which flows from incisions in the small tree or shrub *pistacia lentiscus*, growing upon the borders of the Mediterranean. It is not much used in medicine, but is chiefly employed in manufacturing a brilliant varnish. I introduce it here principally for the purpose of recommending the following use of it in carious teeth, — particularly in those new parts of the country where dentistry is not much known. Dissolve, in a well-stopped bottle, four parts of mastic in one part of sulphuric ether. Saturate with this solution a small piece of cotton of the size of the cavity in the tooth, and then, having cleansed and dried the cavity, gently press the cotton into it. The ether will soon evaporate and leave the gum to attach itself to the sides of the tooth, and protect its inner surfaces from the action of the air and food.



Hemlock.



Iceland Moss



Ipecacuanha.



Indian Hemp.



Juniper



Lovage



Mullein.



Onion.



Male Fern.



Hedge-Mustard.



Liquorice.



Mustard.

Matico (*Piper Angustifolium*). — The leaves of this plant are styptic and somewhat stimulant and tonic. The leaves brought in contact with a bleeding wound, have considerable power to arrest the flow of blood.

Preparations. — Fluid extract, dose, half a dram to a dram ; tincture, four ounces to a pint of diluted alcohol, dose, two drams to one half ounce ; infusion, half an ounce to a pint of water, dose, one to one and a half ounces.

Meadow-Saffron (*Colchicum Autumnale*, Fig. 222). — This is a native of the temperate parts of Europe, where it grows wild in moist meadows. The roots and seeds are used. Colchicum is justly regarded as a valuable remedy in gout and rheumatism, in which it is much and chiefly used. It is thought, also, to act upon the nervous system, allaying pain and producing other sedative effects. When not carried off by the bowels, it produces sweating, and is occasionally diuretic and expectorant. Dose of the dried root, from two to eight grains.



FIG. 222.
MEADOW-SAFFRON.

Preparations. — Fluid extract of root, dose, three to ten drops ; fluid extract of seeds, dose, five to ten drops ; tincture, four ounces to twelve ounces diluted alcohol, dose, ten drops to half a dram ; syrup, two ounces to fourteen ounces simple syrup, dose, one third of a dram to a dram ; wine, three ounces of root to a pint of sherry wine, dose, twenty-five to thirty-five drops.

Monkshood, (*Aconite*). — This is anodyne, sedative and diaphoretic. The leaves and roots are generally used separately. It is useful in inflammatory diseases, neuralgia, epilepsy, paralysis, gout, and particularly in fevers.

Preparations. — Fluid extract, dose, two to five drops ; solid extract, dose, one quarter of a grain to a grain ; tincture, eight ounces of the root to a pint of alcohol, dose, three to five drops.

A preparation composed of one dram of the tincture of aconite-root, and two ounces of the tincture of black cohosh, and taken in doses of one teaspoonful every four hours, has great power in relieving the various forms of neuralgia, and also chronic rheumatic pains, particularly among old people.

For nervous headache, irritability, restlessness and wakefulness, the following combination of aconite is useful : —

Solid extract of aconite, half a dram ; solid extract of stramonium, four grains ; valerianate of quinia, one scruple. Mix and divide into sixty pills, of which one is to be taken every two, three, or four hours, according to symptoms.

Motherwort (*Leonurus Cardiaca*). — This perennial plant is supposed to be a native of Tartary, and introduced into this country. It is considerably used in domestic practice for nervous complaints and

many chronic disorders attended with restlessness, disturbed sleep, pains of the nerves, and affections of the liver. A warm infusion of the tops and leaves is useful in restoring menstrual suppression from colds.

Preparations. — Solid extract, dose, three to five grains. Combined with blue cohosh and skunk-cabbage, the solid extract is a nervine, antispasmodic and emmenagogue.

Mountain Laurel (*Kalmia Latifolia*, Fig. 223). — The laurel is found in most parts of the United States, on hills and mountains, flowering in June and July, and is very ornamental. It is sometimes called *big ivy*, or *calico-bush*. The *narrow-leaf laurel*, or *sheep-laurel*, *kalmia angustifolia*, is also common, and similarly medicinal. The leaves of these plants are used in medicine, and produce, when taken in large doses, vertigo, dimness of sight, etc. In medicinal doses, they are sedative and astringent. The saturated tincture is the best form of administration, which may be taken in ten to fifteen-drop doses, every two or three hours, in syphilis, active hemorrhages, hypertrophy of the heart and jaundice.



FIG. 223.
MOUNTAIN LAUREL.

Mullein (*Verbascum Thapsus*). — The leaves and flowers of this biennial plant are antispasmodic, diuretic and demulcent. The infusion is frequently used in domestic practice, and is useful in colds, coughs, bronchitis, etc.; and may be drunk freely. The leaves are sometimes boiled in milk, sweetened, and taken for bowel complaints. The leaves dipped in hot vinegar and water are very useful applied as a fomentation in mumps, acute inflammation of the tonsils and malignant sore throat; a handful of them may also be placed in a teapot with hot water, and the steam be inhaled through the spout, in the same complaints.

Mustard. — The seeds of the white mustard, *Sinapis alba*, were a few years ago much recommended as a cure for constipation of the bowels; and, swallowed whole in teaspoonful, or even, in some obstinate cases, in tablespoonful doses, they afford a wholesome stimulus to the bowels, and accomplish some good. The ground mustard is a valuable condiment to eat in small quantities, at dinner, in dyspeptic cases. It finds its most important uses, however, as a prompt and almost instantaneous emetic in cases of poisoning, and also as a valuable counter-irritant, when applied externally. The *volatile oil of mustard*, one part, and ten parts of sweet oil, may be applied to the skin instead of the mustard poultice, and with similar results.

Myrrh. — The tree *Balsamodendron myrrha*, growing in Arabia, etc., yields a juice which hardens into a gum-resin, called myrrh. This pleasant, aromatic gum is stimulant, tonic, antiseptic, emmena-

gogue and expectorant. It is employed in chronic bronchitis, consumption, chlorosis, absence of the menses, etc. It is generally combined with iron and other tonics, and in amenorrhœa it is frequently combined with aloes. Locally, it is considerably used as a wash to improve spongy gums, ulcers of the mouth, etc. The dose is from ten to twenty grains, to be given in pill or in powder suspended in water. The tincture of myrrh is a useful external application.

Naphtha. — This belongs to the class of native inflammable substances, called bitumens. It is a transparent, yellowish white, very light and inflammable liquid, and is found abundantly in Persia. Said to have been used with advantage in Asiatic cholera. It is composed exclusively of carbon and hydrogen. Dose, from ten to twenty drops, given in half a glass of wine or mint-water. During the formation of coal-gas, an artificial naphtha is obtained, which, when purified, has the property of dissolving India rubber.

Medicinally, it is chiefly used for purposes of inhalation in affections of the chest.

Naphthalin. — This is obtained from a distillation of coal-tar. Is soluble in ether, alcohol, naphtha and oils, but not in water. It is an excellent expectorant, particularly in cases of impending suffocation of old persons from chronic bronchitis; also in asthma and other pectoral affections. Being stimulating, it is improper in acute bronchitis, and pulmonary inflammation. The dose is from ten to twenty-five grains, given in emulsion, or syrup, every fifteen minutes, until abundant expectoration takes place. A scruple of naphthalin mixed with five drams of lard, makes a good ointment for psoriasis, dry tetter and leprosy.

•**Nitrate of Silver** (*Argenti Nitras*). — Nitrate of silver is a solution of silver in nitric acid, and commonly passes under the name of lunar caustic. It is both in the form of small cylindrical rods and of crystals, the latter being more pure than the former.

As an internal remedy, nitrate of silver is tonic and antispasmodic and is given chiefly in nervous diseases, as epilepsy, St. Vitus's dance and neuralgia of the heart; also in some forms of dyspepsia, attended with pain in the stomach and vomiting. The dose is from one-fourth to half a grain in the form of pill. It should never be taken regularly as an internal remedy more than two months, as it is apt, after long use, to change the skin to an indelible slate-blue. Use only under the direction of a physician.

But nitrate of silver is most used as an external remedy in pharyngitis, laryngitis, tracheitis and other chronic and acute inflammations of mucous membranes. For reducing these inflammations, it is very nearly a specific; certainly, it is altogether the best remedy we have. It fails in some cases; but when skilfully used it *never* does harm. The solutions to be applied to the throat require to have a strength of from fifteen to a hundred grains to the ounce of soft water. A

solution containing one to four or more grains to the ounce of water is often used in inflammations of the eye, gonorrhœa, etc.

Nitre (*Potassæ Nitras*). — Nitre, which also passes under the name of *nitrate of potassa*, and *saltpetre*, is both a natural and artificial production. As a medicine, it is refrigerant, diuretic, and diaphoretic, and is much used in inflammatory diseases. It increases the secretion of urine and sweat, and lessens the heat of the body and the frequency of the pulse. United with tartar emetic and calomel, it forms the well-known nitrous powders, which promote most of the secretions, particularly those of the liver and skin. One of these powders, constituting a dose, to be given every two or three hours, is composed of eight grains of nitre, one-eighth of a grain of calomel, and one-eighth of a grain of tartar emetic. Use with care.

Sweet Spirit of Nitre (*Spiritus Ætheris Nitrici*). — Sweet spirit of nitre is diuretic, diaphoretic, and antispasmodic. It is deservedly much esteemed as a medicine, and is extensively employed in febrile diseases, either alone or in union with tartar emetic, or with spirit of Mindererus. It is often a grateful stimulus to the stomach, relieving nausea and vomiting, and promoting sleep. It acts especially upon the kidneys, augmenting the secretion of urine, and is often given in conjunction with squills, digitalis, and acetate of potassa. The dose is a teaspoonful, given in water every two or three hours.

Nutmeg (*Myristica Moschata*). — The nutmeg is from a tree growing in the Molucca Islands. It is stimulant and carminative, and somewhat used to remove flatulency, as well as to render other medicines palatable; it is most employed, however, to flavor drinks, and articles of diet. In large doses it is poisonous, producing stupor and delirium.

Nux Vomica (*Strychnos Nux Vomica*, Fig. 224). — The tree which produces nux vomica grows in Bengal, Malabar, on the coast of Coromandel, and in other regions. The seeds are the medicinal part.



FIG. 224. NUX VOMICA.

Nux vomica is an emphatic excitant of the brain and spinal cord, and in large doses is an active poison; frequently repeated in small doses, it is tonic, diuretic, and slightly laxative.

Given in full doses, it is apt to produce muscular contraction, as in lockjaw, together with frequent starts and twitches, as if from electric shocks. It is much employed in treatment of paralysis, and is more beneficial in general than in partial palsy.

Preparations. — Fluid extract, dose, two to seven drops; solid extract, dose, half a grain to a grain; tincture, four ounces to the pint of alcohol, dose, five to ten drops; strychnia, commonly called strychnin, the active principle, dose, one-sixteenth to one-eighth of a grain.

Oil of Cajuput (*Oleum Cajuputi*). — This oil is obtained from the leaves of the East Indian tree cajuputi. It is diaphoretic and antispasmodic, and a powerful diffusive stimulant. Given in cramps of the stomach and bowels, colic, flatulency, hysterics, and chronic rheumatism. It is considerably used as an ingredient in liniments, to be applied externally in rheumatism and neuralgia. Dose, from one to three drops, on sugar.

Oil of Turpentine (*Oleum Terebinthinæ*). — This is generally called spirits of turpentine, and is obtained by distilling turpentine. As a medicine it is stimulant, cathartic, diuretic, anthelmintic, and astringent. In large doses it causes strangury and other unpleasant symptoms. The dose is from five to twenty drops, repeated every two or three hours. Fifteen drops, taken every fifteen minutes or half hour, powerfully restrains bleeding from the lungs, and is, perhaps, the best remedy we have for this frightful accident.

It is also very efficacious in checking other hemorrhages. Externally, it is used considerably as an ingredient in liniments and rubefacients, in rheumatism, paralysis, etc. Combined with linseed oil, it is much used for burns and scalds.

Olive Oil (*Oleum Olivæ*). — This oil, often called *sweet oil*, is expressed from the fruit of the olive tree, *Olea Europæa*. It is nutrient and emollient, and, in doses of one to two fluid ounces, laxative. It is much employed as a constituent of cerates, liniments, and plasters.

Onion (*Allium Cepa*). — The medicinal properties of the onion are much like those of garlic. The juice, mixed with sugar, is used to some extent as a remedy for the coughs and colds of infants. Roasted onions, applied as a poultice, hasten the suppuration of boils, tumors, etc. They are also useful, in some cases, applied as drafts to the feet.

Opium. — This is the hardened juice of the unripe seed of the poppy, *Papaver Somniferum*. It is a stimulant narcotic. A moderate dose increases the fulness and frequency of the pulse, augments the warmth of the skin, invigorates the muscular system, quickens the senses, animates the spirits, and gives energy to the mental faculties. Its operation is directed with special force to the brain, which it sometimes excites to intoxication and delirium, which excitement subsides in a short time, and is followed by a delightful calmness and placidity of mind, all care and anxiety being banished, and the thoughts yielded to the control of pleasing fancies. At the end of an hour or more, this reverie is succeeded by sleep, which, at the end of eight or ten hours, passes off, and is followed by headache, nausea, tremors, and other nervous disturbances. Large doses are followed by shorter periods of exhilaration and excitement, and by more protracted sleep.

Opium is used in medicine to produce gentle perspiration, relieve

pain, and lessen nervous excitability in all febrile and inflammatory diseases; also as an antispasmodic in hysterics, colic, convulsions, coughs, etc. It should not be used in cases of constipation of the bowels. A solution, composed of two grains of opium to one ounce of water, is sometimes a valuable injection in gonorrhœa and spasmodic stricture. Dose, as a stimulant, one-quarter to one-half a grain; as a narcotic, one to two grains; in some spasmodic affections it is given in very large doses. Use only under the direction of a physician.

Morphia, generally called *morphine*, is one of the alkaloid principles of opium. It is used under the various forms of *sulphate*, *muriate*, *acetate*, and *valerianate* of *morphia*, — all having the general properties of opium, and are given for similar purposes, in doses of one-eighth to one-quarter of a grain. One-sixth of a grain is equal to one grain of opium.

Strong coffee is an excellent antidote to the poisonous effects both of opium and morphia. A solution of morphia may be made by adding ten grains of the salt to one fluid ounce and a half of distilled water, and half an ounce of diluted alcohol, and then adding two drops of sulphuric acid, if it be the sulphate of morphia, or two drops of acetic acid, if it be the acetate of morphia, or two drops of muriatic acid, if it be the muriate of morphia. The effects of morphia may be obtained by sprinkling some of it on a blistered surface.

Orange-Peel (*Aurantii Cortex*). — The orange is the fruit of a tree belonging to the tropical climates. Orange-juice is a pleasant refrigerant, useful in fevers, and particularly in scurvy. Sick persons sucking the juice of the orange, should be careful not to swallow any of the skinny portion, or the peel. The peel of the orange is chiefly employed to give a pleasant flavor to other medicines, and to prevent their nauseating properties. It is a mild tonic, carminative, and stomachic, and improves the bitter infusions and decoctions of gentian, quassia, colombo, and Peruvian bark. Orange-peel should never be given in substance.

Preparations. — Fluid extract, dose, half a dram to two drams; tincture, one ounce and three-quarters to a pint of diluted alcohol, chiefly used as an addition to infusions, etc.; syrup, two ounces fluid extract or tincture to a pint of simple syrup, used with water as an agreeable drink.

Origanum (*Origanum Vulgare*). — A perennial herb growing in Europe and this country. The warm infusion of it causes perspiration, and promotes the menstrual discharge, when interrupted by a cold. The oil of origanum is a very useful ingredient in several stimulant and rubefacient liniments.

Parsley (*Petroselinum Sativum*). — The root of this biennial plant is aperient and diuretic, and is used in dropsy, scarlet fever, and diseases of the kidneys; also in retention of the urine, gonorrhœa,

and strangury. The dose of the infusion is from two to three fluid ounces, two or three times a day.

The bruised leaves are applied with advantage to contusions, swelled-breasts, and enlarged glands.

Partridge Berry (*Mitchella Repens*). — This perennial evergreen creeping herb grows in dry woods and swampy places throughout the United States, and has white, fragrant flowers in June and July. It is parturient, diuretic and astringent, and is used in dropsy, suppression of urine, and diarrhœa. It acts as a tonic upon the reproductive organs, giving tone and vigor to the womb, and making labor less tedious. Dose of the decoction, from two to three fluid ounces, two or three times a day.

Peach (*Amygdalus Persica*). — The leaves of the peach are sedative and slightly laxative, and are used in inflammations of the stomach and bowels; likewise in irritable bladder, whooping-cough, sickness at the stomach, and dysentery. They are used in the form of cold infusion, a tablespoonful being a dose, to be taken every hour or two. A good tonic is made by adding four ounces of the bruised kernels to a quart of honey.

Pennyroyal (*Hedeoma Pulegioides*, Fig. 225). — Pennyroyal is a gently stimulant aromatic; it relieves wind colic and sick stomach, and qualifies the action of other medicines. Like most aromatic herbs, it has the property, when given as a warm infusion, of promoting perspiration and of exciting the menses when the system is already disposed to the effort. In cases of recent suppression, it may be given at bedtime as a warm tea, after bathing the feet in warm water. The oil of pennyroyal has the properties of the herb.

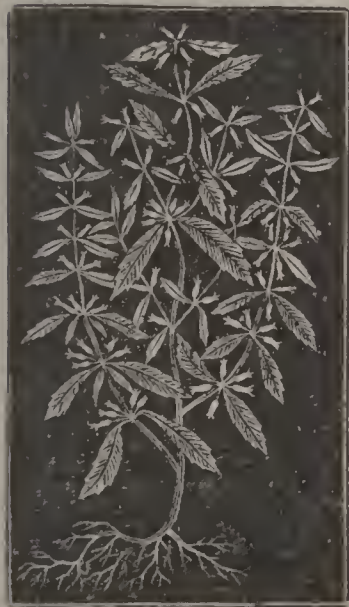


FIG. 225.
PENNYROYAL.

Peppermint (*Mentha Piperita*). — The peppermint is a native of England, where it is largely cultivated, as it is to some extent in this country, for the sake of its essential oil. It is a valuable herb, having a strong aromatic smell, and a pungent, warming taste. It may be used in the form of tea, which, when largely drunk, imparts warmth to the system. It is valuable in colds, flatulent colic, hysterics, spasms, cramps in the stomach, nausea and vomiting, and to disguise unpleasant medicines.

The peppermint furnishes an essential oil, which, dissolved in alcohol, forms the essence of peppermint. The dose of this is fifteen to twenty drops, on a lump of sugar, or in sweetened water, warm or cold.

Persimmon (*Diospyros Virginiana*). — This is a tree growing in the Southern and Middle States. The bark and unripe fruit are used in medicine, — being astringent and tonic. Persimmon has been found useful in chronic diarrhœa, chronic dysentery, hemorrhage

from the womb, and fever and ague. It is used in the form of infusion and syrup, in doses of a tablespoonful every two or three hours. The infusion is also used as a wash and gargle in sore mouth and throat, and as an injection in whites.

Peruvian Bark (*Cinchona*, Fig. 226).—This valuable bark is derived from several species of the cinchona tree, on the western coast of South America. The remedy is said to have been first introduced into Europe in 1640, by the Countess of Cinchon, wife of the Viceroy of Peru, on her return to Spain.

There are three varieties of this bark: the pale, the red, and the yellow. The pale bark is least liable to offend the stomach, and is perhaps the best as a general tonic; but for the treatment of fever and ague, the red and the yellow are both preferable to the pale, and the red is considered better than the yellow.

Cinchona is tonic and antiperiodic, and is much used, and with great success, in all periodical diseases, as fever and ague, remittent fever, neuralgia and epidemic diseases; also in chronic diseases attended with debility, as scrofula, dropsy, and affections of the skin. Dose of the powdered bark as a tonic, from ten to fifty grains; as an antiperiodic, from twenty to seventy-five grains.



FIG. 226. PERUVIAN BARK.

Preparations.—Fluid extract, dose, half a dram to a dram; compound fluid extract, dose, half a dram to a dram; tincture, four ounces to one pint diluted alcohol, dose, one to four drams; infusion, dose, one to one and a half ounces. A good compound infusion of cinchona is made by combining one ounce fluid extract with half an ounce of fluid extract of snakeroot, two drams of fluid extract of orange-peel, one dram of fluid extract of cloves, one dram of carbonate of potassa and one pint of water. Dose, one to one and a half ounces. The following is a good nervine and tonic for persons of nervous temperaments: fluid extract of cinchona, one ounce; fluid extract of valerian, one ounce; essence of cardamom, two drams; dose, one dram every three hours.

Cinchonia is a white crystalline substance obtained from the Peruvian bark. It is sometimes used as a substitute for quinia, in doses of from one to three grains, three times a day.

Sulphate of Quinia is snow white, and in satin-like crystals, having an exceedingly bitter taste. It is completely soluble in water or alcohol, by adding a few drops of sulphuric acid. It is the chief active principle of cinchona, and has similar properties, namely, febrifuge, tonic and antiperiodic; it is, however, less apt to nauseate

and oppress the stomach. In the treatment of intermittent fevers, it has almost entirely superseded the use of the bark.

Valerianate of Quinia. — This is a combination of quinia and valerianic acid. It is tonic, febrifuge and sedative. It is used for headache of a periodic character, and for nervous irritability, wakefulness, restlessness, etc. Dose, from half a grain to two grains.

Petroleum or Rock-Oil is a dark brown or greenish liquid found abundantly in the upper strata of the earth in various parts of the world. Before the discovery of the deep deposits of the oil by artesian wells, the Indians of New York used to collect it where it oozed from the ground, and sold it as a family medicine under the name of "Seneca Oil." It has been used externally for chilblains, chronic rheumatism, diseases of the joints, and skin affections. Taken internally, it is stimulating, anti-spasmodic, and sudorific, and has been recommended for lung troubles. At present it is used in various modified forms.

Phosphorus. — This is a semi-transparent solid, is flexible, and has a waxy lustre. It is extracted from bones by sulphuric acid. As a medicine in small doses, it acts as a powerful general stimulant; in large doses, as a violent, irritant poison. When taken in substance it causes irritation of the stomach, and should, therefore, always be administered in solution; and even in this form it is objectionable; it is better to resort to the phosphates and the hypophosphites. Phosphorus, being an element in the composition of the brain, has been given with advantage in the various forms of nervous debility, as consumption, typhus fever, amaurosis, paralysis, and the general breakdown of the vital powers. Phosphorus burns when exposed to the air, and should therefore be kept covered with water.

Pink-Root (*Spigelia Marilandica*, Fig. 227). — This perennial herb grows in rich soils in the Middle and Southern States. The root is the medicinal part. It is a powerful anthelmintic, and is but little used except for expelling worms.



FIG. 227. PINK-ROOT.

Preparations. — Fluid extract, dose, half a dram to a dram; compound fluid extract, dose, half a dram to two drams; fluid extract of pink-root and senna, dose, half a dram to a dram; infusion, half an ounce to a pint of water, dose, two to six ounces.

Pipsissewa (*Chimaphila Umbellata*, Fig. 228). — This is a small evergreen plant, growing in the United States, and in Northern Europe and Asia. It is known by the name of *princes' pine*. The whole plant is tonic, diuretic and astringent, and has proved itself useful in dropsy, general debility, rheumatism, chronic disorders of the kidneys, bladder, urethra, etc.

Preparations. — Fluid extract, dose, one dram; solid extract, dose, ten to fifteen grains; infusion, dose, two ounces.



FIG. 228. PIPSISSEWA.

Plantain (*Plantago Major*). — This perennial herb grows both in Europe and America. A strong decoction of the tops and the roots is highly spoken of for syphilis and scrofula; the dose being from two to four fluid ounces, two or three times a day. But the bruised leaves are most useful when applied to wounds, ulcers, bites of poisonous insects, erysipelas, etc.

Pleurisy-Root (*Asclepias Tuberosa*, Fig. 229). — This perennial plant is abundant in the Southern States. The root, which is the part used, is carminative, tonic, and diuretic; used in pleurisy, bronchitis, inflammation of the lungs, acute rheumatism and dysentery. The warm infusion promotes diaphoresis, without raising the temperature of the body. United with the warm infusion of wild-yam root, it is excellent for flatulency and wind colic.

Preparations. — Fluid extract, dose, half a dram to two drams; tincture, four ounces to a pint of diluted alcohol, dose, three to five drams; infusion, dose, one to four ounces; asclepidin, dose, one to five grains. Asclepidin and dioscorein, united in equal parts, make a valuable preparation for flatulent and bilious colic; dose, two to three grains.



FIG. 229. PLEURISY-ROOT.



FIG. 230. POISON HEMLOCK.

Poison Hemlock (*Conium Maculatum*, Fig. 230). — This biennial plant is a native of Europe and Asia, and is naturalized in this country. The leaves and the seeds are used in medicine. Conium is narcotic, anodyne, antispasmodic and deobstruent; used in neuralgia, asthma, syphilis, chronic rheumatism, and various other affections.

Preparations. — Fluid extract, dose, five to fifteen drops; solid extract, dose, half a grain to two grains; tincture, three ounces to a pint of diluted alcohol, dose thirty drops to a dram; infusion, half

an ounce to a pint of water, mainly used as a wash for malignant ulcers, etc. Use with care.

Poison Oak (*Rhus Toxicodendron*).— The leaves are the medicinal part of this creeping shrub, which is common in this country. The form of using this medicine is that of a saturated tincture, made from the fresh leaves, and to be kept in well-corked vials. It has been found useful in paralysis of the bladder and rectum, in diseases of the eyes and skin, and in chronic rheumatism. Dose of the tincture, from five to seven drops, three times a day. Large doses should be avoided.

Poke (*Phytolacca Decandra*, Fig. 231).— A perennial plant, growing in nearly all parts of the country, and called *garget*, *pigeon-berry* and *scoke*. The root is the part used. It is emetic, cathartic, alterative and slightly narcotic. It excites the whole glandular system, and is used in syphilis, scrofula, rheumatism and affections of the skin. The root, buried in hot ashes until soft, is then mashed and applied as a poultice for felons and various tumors. Dose of the powdered root as an emetic, twelve grains to half a dram; as an alterative, from two to five grains.



FIG. 231. POKE.

Preparations.— Fluid extract, dose, ten to twenty drops; solid extract, dose, one to three grains; tincture, four ounces to a pint of diluted alcohol, dose, half a dram to a dram; syrup, two ounces to fourteen ounces of simple syrup, dose, one to two drams; phytolaccin, the active principle, dose, one quarter to one grain. For mercurial and syphilitic pains in the bones the following pill is useful: solid extract of poke, two drams; solid extract of stillingia, one dram; solid extract of stramonium, eight grains. Mix, and divide into sixty pills, of which one pill is to be taken every two or three hours.

Potassa.— This is used in medicine under the name of caustic potassa. It is made by boiling a solution of potassa in a clean iron vessel until ebullition ceases, and the potassa melts, and then pouring it into cylindrical moulds; when cold it is to be kept in well-stopped bottles. It is a very powerful escharotic, quickly destroying the flesh which it touches, and extending its action deep under the surface. It differs in this respect from nitrate of silver, which only acts upon the surface, and is not, properly speaking, a caustic.

Caustic potassa is used for forming issues. The method of using it for this purpose is to cut in a piece of adhesive plaster a hole as large as the desired issue, and then, having stuck this upon the skin, to apply the end of the caustic, previously moistened, to the opening. This application is to be continued till the life of the part is destroyed,

when the caustic must be neutralized by vinegar, or carefully washed off with a wet sponge.

The following preparations of potassa are used in medicine: —

Acetate of Potassa (*Potassæ Acetas*). — This is made by the union of acetic acid and carbonate of potassa, and in consequence of its extreme deliquescence when exposed to the air it is kept in closely-stopped bottles. It is diuretic, deobstruent, and mildly cathartic. It is used in febrile diseases, several skin diseases, such as psoriasis, eczema, and lepra, and particularly in dropsical affections. Dose, as a diuretic, from ten to twenty grains; as an aperient from one to two drams.

Bicarbonate of Potassa (*Potassæ Bicarbonas*). — This is a solution of carbonate of potassa, saturated with carbonic acid. This acid is diuretic, antacid, and deobstruent; used in dropsy, acidity of the stomach, and glandular obstructions. Dose, ten to twenty grains. Twenty grains dissolved in eight fluid ounces of water, and mixed with four fluid drams of lemon-juice, forms a good effervescing draught.

Bitartrate of Potassa (*Potassæ Bitartras*). — This salt is better known as *cream of tartar*, and *supertartrate of potassa*. It is formed from the matter deposited on the bottom and sides of casks, during the fermentation of sour wines. As a medicine it is diuretic, cathartic, and refrigerent. In small doses it acts as a cooling aperient, gently opening the bowels; in large ones as a hydragogue cathartic, causing free, watery stools. This property, as well as its power of acting upon the kidneys, causes it to be much used in dropsical complaints. Dissolved in boiling water, allowed to cool, and then sweetened with loaf sugar, it forms a cooling, pleasant, acid drink. This kind of solution, with a little fresh lemon-peel added to it, forms the drink called *imperial*. Combined with sulphur, it is often used in skin diseases. Dose, as an aperient, a dram or two; as a hydragogue cathartic, half an ounce to an ounce; as a diuretic in dropsical complaints, a dram and a half to two drams several times a day. Cream of tartar, powdered rhatany, and myrrh, mixed in equal proportions, form a good preparation for cleansing the teeth.

Carbonate of Potassa (*Potassæ Carbonas*). — Carbonate of potassa is *purified pearlash*, and is frequently called *salt of tartar*. Carbonate of potassa has the same medicinal properties with the bicarbonate, and is used for similar purposes.

Chlorate of Potassa. — This is prepared by passing an excess of chlorine through carbonate of potassa. It is refrigerent and diuretic, and is given in scurvy, scarlet fever, etc., and as a wash in canker in the mouth, and various unhealthy ulcers, and as an injection in leucorrhœa and gleet.

Citrate of Potassa (*Potassæ Citras*). — A grateful, cooling diaphoretic, long and much used in fevers, chiefly in the forms of the *neutral mixture*, and *effervescing draught*.

Solution of Citrate of Potassa (*Liquor Potassæ Citratis*). — This is prepared by taking half a pint of lemon-juice, and adding bicarbonate of potassa gradually to it until it is saturated, then filtering. This passes under the name of *neutral mixture*, *saline mixture*, and *effervescing draught*. It is a valuable refrigerent diaphoretic, well adapted to the hot stage of remittent and intermittent fevers, and indeed to almost all cases of fever, with a dry, hot skin. The dose is a tablespoonful, or half a fluid ounce, which should be well diluted when taken, and be repeated every two or three hours, according to the necessities of the case.

Solution of Potassa (*Liquor Potassæ*). — This is a transparent, caustic fluid, which requires to be kept in green bottles, tightly corked. It is antacid, antilithic, and diuretic. It is used in some affections of the skin, and scrofula, but more particularly for scalding of the urethra, in gonorrhœa; in this case, it is well to unite a few drops of laudanum with it. The dose is from fifteen to twenty-five drops, two or three times a day, in half a tumblerful of water. In dyspeptic cases, attended with acidity of the stomach, it may be associated with some simple bitters.

Sulphate of Potassa (*Potassæ Sulphas*). — This is a mild purgative, operating without irritation or pain. As an aperient, it should be given in doses of from a scruple to a dram. Ten grains of rhubarb and one dram of carbonate of potassa, united, and divided into six powders, is an excellent alterative cathartic for children having defective digestion and nutrition, and a tumid state of the abdomen. One powder may be given at a time, as often as may be necessary to open the bowels gently.

Tartrate of Potassa (*Potassæ Tartras*). — This often passes under the name of *soluble tartar*. It is a mild, cooling purgative, operating, as most of the neutral salts do, without much pain, and producing watery stools. It is useful in fevers. Combining it with senna destroys its tendency to produce griping of the bowels. The dose varies from a dram to an ounce, according to the effect desired.

Potassium. — This is a soft, bluish-white metal. Its union with oxygen, in the proportion of one equivalent of each, forms potassa or potash. The following preparations of it are used in medicine: —

Bromide of Potassium (*Potassii Bromidum*). — This is a permanent, colorless salt, having a pungent, saline taste, a little more acrid than common salt, yet similar to it. As a medicine it is alterative and resolvent, and is used occasionally for secondary syphilis, scrofula, and enlarged spleen. Dose, from three to five grains, three times a day, in pill or solution. One dram of the bromide of potassium, rubbed up

with an ounce of lard, makes an ointment which has been used with some good effect in goitre and scrofulous affections.

Cyanuret of Potassium (*Potassii Cyanuretum*). — This is eminently poisonous, acting both as a medicine and as a poison, like hydrocyanic acid. It has therefore been recommended as a substitute for that acid. The dose is one-eighth of a grain, dissolved in half a fluid ounce of water.

Sulphuret of Potassium (*Potassii Sulphuretum*). — This is called *liver of sulphur*, and *hepar*, being composed of sulphur and potassium. It has been used in chronic bronchitis, asthma, whooping-cough, and rheumatism. Half an ounce to an ounce of it, dissolved in several gallons of warm water, makes a valuable sulphur bath for several skin diseases, as itch, prurigo, etc.

Prickly Ash (*Xanthoxylum Fraxineum*). — This shrub grows in various parts of the United States. The leaves and capsules have



FIG. 232.
PRICKLY ASH.

a pleasant, aromatic smell. Its medicinal properties are in the bark and berries. The bark is stimulant, tonic, alterative, and sialagogue. It is used to rouse and excite the system, when in a languid state, and for derangements of the liver, rheumatism, and chronic syphilis. It stimulates and strengthens mucous membranes, and is a valuable tonic in low typhoid fever. Applied externally, it improves indolent and malignant ulcers. Dose of the powdered bark, from ten to twenty grains, three times a day.

Preparations. — Fluid extract, dose, fifteen to twenty-five drops; tincture, four ounces to a pint of diluted alcohol, dose, half a dram to a dram; infusion, half an ounce to a pint of water, dose, half an ounce to two ounces; xanthoxylin, the active principle, dose, two to five grains.

For chronic rheumatism the following is a good preparation: xanthoxylin, one dram; cimicifugin, one dram; apocynin, one dram; diluted alcohol, one pint; dose, three drams, three times a day.

Prickly Ash Berries are carminative, antispasmodic, and stimulant, and have a special direction to mucous membranes. The tincture is excellent in nervous diseases, spasms of the bowels, flatulency, and diarrhoea; and, combined with the tincture of poke-berries, is very serviceable in chronic rheumatism and syphilis. It is said to have been used with great success, in the West, in Asiatic cholera. Dose of the tincture, from ten drops to a fluid dram, in sweetened water. Dose of the oil of prickly-ash berries, from two to seven drops, on sugar.

Prickly Elder (*Aralia Spinosa*). — This is a tree which grows in the Southern and Western States, and is called *Southern prickly ash*, and *toothache tree*. The bark is stimulant, alterative, and diaphoretic.

The fresh bark, emetic and cathartic. The tincture is serviceable in skin diseases, syphilis, and chronic rheumatism. The bark is sialagogue, and in small doses, powdered, is said to relieve the dry and parched condition of the throat, in many diseases.

Pumpkin-Seeds — The infusion of pumpkin-seeds, made by placing them in water without bruising them, is mucilaginous and diuretic, and is used in inflammation of the stomach and bowels, scalding of the urine, strangury, etc. But this infusion is more particularly valuable for its power of expelling the tape-worm. It may be drunk freely. The oil of pumpkin seeds, obtained by expression, has similar properties, and may be taken in doses of six to ten drops, several times a day.

Quassia (*Picroëna Excelsa*). — This is the wood of a tall tree growing in Surinam and some of the West India Islands. It is an intensely bitter tonic, febrifuge, and anthelmintic, possessing in the highest degree the properties of the simple bitters. It invigorates the digestive organs, without producing much excitement of the circulation. It is well adapted to dyspepsia, and the debility of the stomach which succeeds acute disease, and indeed all complaints where simple bitter is required. Its generic title perpetuates the name of the negro Quassi, of Surinam, who first discovered its medicinal virtues, about the middle of the last century, and who became famous for treating malignant fevers with it, as a secret remedy.

Preparations. — Fluid extract, dose, half a dram to a dram; solia extract, dose, three to five grains; tincture, dose, four to eight drams; infusion, two drams to a pint of water, dose, two to three ounces.

Queen of the Meadow (*Eupatorium Purpureum*). — This perennial herb grows in low, swampy places, in many parts of the country. It is called *trumpet weed*, and, from its fine medicinal effects in complaints of the urinary organs, *gravel-root*. It is an excellent diuretic, tonic, and stimulant. Used in gout, rheumatism, hematuria, chronic diseases of the urinary organs, strangury, gravel, and dropsical affections. The decoction is the form in which it is most used; the dose being two to three ounces, two or three times a day.

A preparation called *eupurpurin* is also extracted from it, which, in three-grain doses, is a powerful diuretic, occasioning, in some cases, it is said, an enormous flow of urine.

Queen's Root (*Stillingia Sylvatica*). — This perennial herb grows in sandy soils in the Southern States. The root is medicinal, being, in large doses, emetic and cathartic; in small doses, an alterative of considerable value in skin diseases, rheumatism, syphilis, and scrofula, and in such other complaints as require alteratives.

Preparations. — Fluid extract, dose, five to ten drops; compound fluid extract, dose, half a dram to a dram; tincture, two ounces to a pint of diluted alcohol, dose, one to three drams; infusion, dose, one to one and one-half ounces. In chronic bronchitis and similar com-

plaints, the following syrup is well recommended: fluid extract of stillingia, two ounces; fluid extract of bloodroot, two ounces; fluid extract of cherry bark, two ounces; balsam of tolu, one ounce and a half; syrup, two and a half pints. Dose, one to two drams.

Red Chickweed (*Anagallis Arvensis*). — An annual plant, common in Europe and this country. It has small scarlet flowers in June and July. It has been used in nervous diseases, as mania, delirium, epilepsy, and particularly hydrophobia. Old and ill-conditioned ulcers are improved by its use, in the form of poultice.

Red Root (*Ceanothus Americanus*). — This shrubby plant has the names of *New Jersey tea* and *wild snowball*, and is found in all parts of the United States. The bark is antispasmodic, sedative, astringent, and expectorant, and tastes and smells like the peach-leaf. A decoction is useful in dysentery, diarrhœa, whooping-cough, and chronic bronchitis, in doses of a tablespoonful three times a day. It makes, likewise, a very good injection in leucorrhœa and gleet, and gargle for ulcerations of the mouth and throat.

Red Clover (*Trifolium Pratense*). — The blossoms of this very common biennial plant are medicinal, and are highly recommended in deep, ragged, and cancerous ulcers, as well as in badly conditioned burns. They are soothing and detergent, and promote healthful granulation. Taken in large doses for a year or so, it is said to be good for cancer.

Preparation. — Solid extract, to be used as an external application, chiefly in the form of ointment, made by uniting four ounces of it with half a pound of lard.

Red Rose (*Rosa Gallica*). — The petals of the rose are slightly tonic and astringent, and are considerably employed in chronic inflammations of the eye. Rose-water, distilled from the petals, is used for similar purposes.

Red Saunders (*Pterocarpus Santalinus*). — This is a large tree growing in Ceylon, the wood of which imparts a red color to alcohol, ether, and alkaline solutions, but not to water. It is almost solely used for imparting color to tinctures, etc., having little or no medicinal properties.

Rosin. — This is the solid resinous matter which remains after the distillation of turpentine. It is much used as an ingredient in ointments and plasters, but is never taken internally. The vapor which arises from heating it upon some hot surface is sometimes inhaled with great advantage in chronic bronchitis, and other chronic affections of the air-tubes.

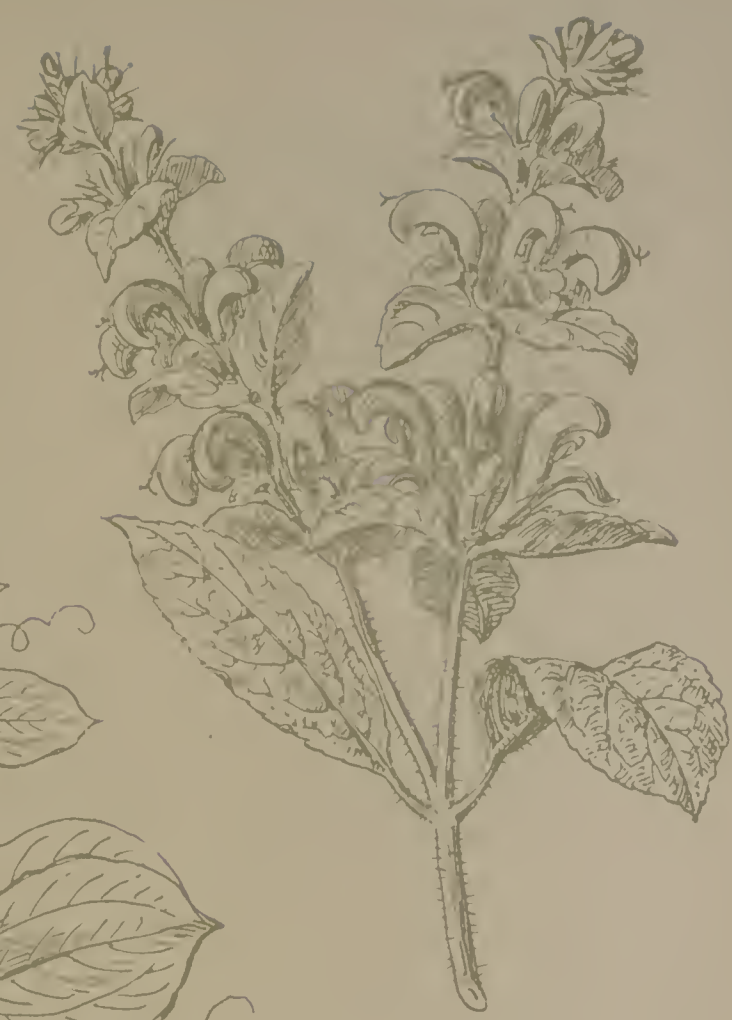
Rhatany (*Krameria Triandra*). — This is a native of Peru, growing in dry, sandy places. It is a powerful astringent, and a gentle tonic. It is given with advantage in excessive menstruation, vom-



Plantain.



Sarsaparilla.



Sage.



Parsley.



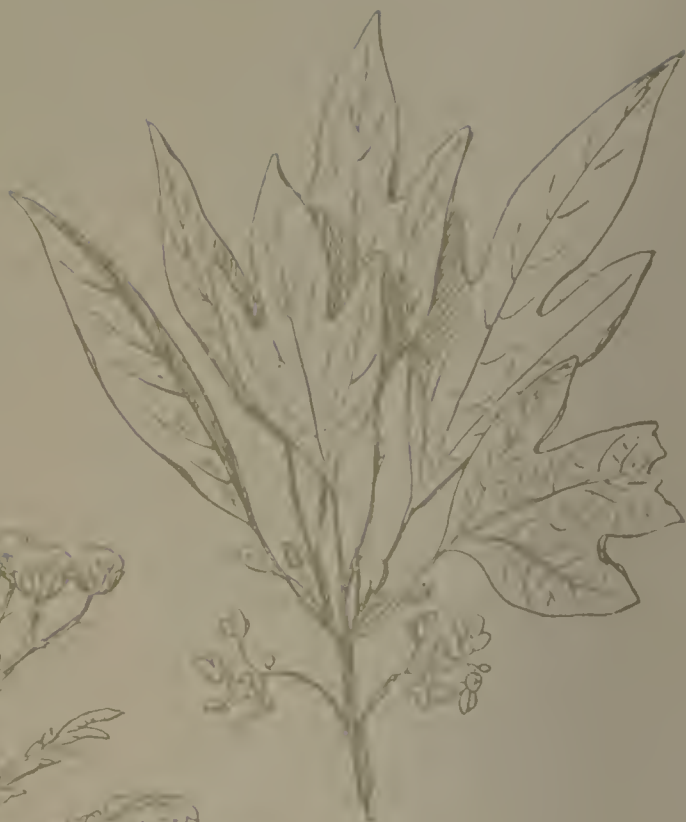
Squill.



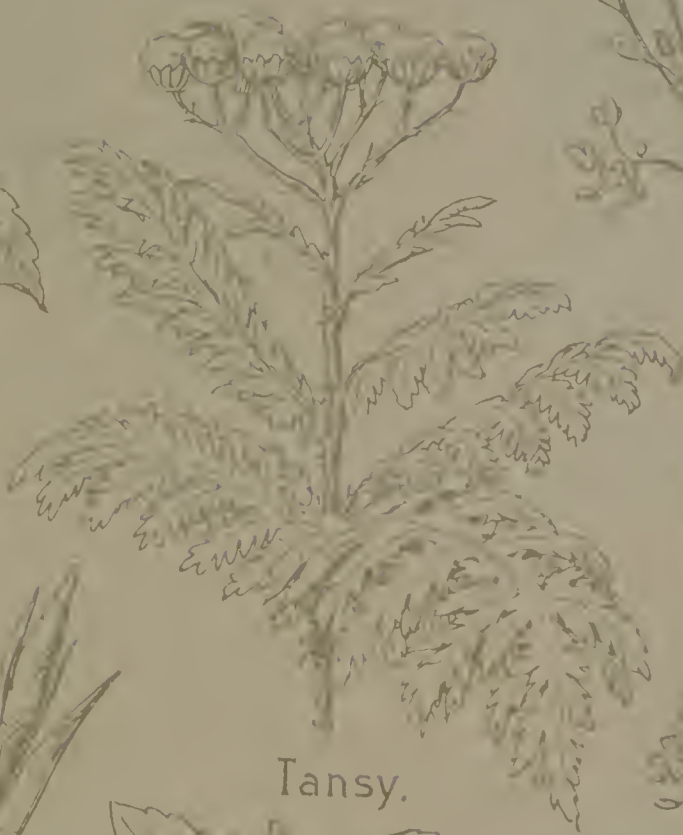
Peppermint



Thorough Wort.



Sassafras.



Tansy.



Yellow Flag.



Tea.



Valerian.

iting of blood, chronic diarrhœa, leucorrhœa, and inability to retain the urine; likewise, as a local application in falling of the bowel. It is valuable also for nosebleed, and bleeding gums. Dose of the powder, for internal use, from ten to twenty-five grains.

Preparations. — Fluid extract, dose, half a dram to a dram; solid extract, dose, five to fifteen grains; tincture, three ounces to a pint of diluted alcohol, dose, three to five drams; infusion, two ounces to a pint of water, dose, half an ounce.

Rhubarb (*Rheum Palmatum*). — This root is derived from several species of rheum, and passes under the various names of *European*, *Russian*, *Chinese*, *East India*, and *Turkey rhubarb*. The variety called Russian or Turkey rhubarb (for they are the same) is considered the best. Rhubarb is cathartic, astringent, and tonic. It is much used in mild cases of diarrhœa and cholera infantum; likewise, as a stomachic and gentle tonic in dyspepsia, accompanied with a debilitated state of the digestive organs. It is a valuable remedy in the complaints of children, and is deservedly much used in treating them. It acts upon the muscular coat of the bowels, producing thick rather than watery stools. It is therefore not adapted to the treatment of dropsical complaints. Its astringency may be increased by roasting it, or diminished by combination with an alkali.

Preparations. — Fluid extract, dose, half a dram to a dram; aromatic fluid extract, dose, half a dram to a dram; fluid extract of rhubarb and senna, dose, half a dram to a dram; solid extract, dose, two to eight grains; tincture, an ounce and a half of fluid extract, and half an ounce of essence of cardamom, to a pint of diluted alcohol, dose, half an ounce to an ounce and a half; infusion, one ounce fluid extract and two ounces spirit of cinnamon to a pint of water, dose, one to three ounces; syrup, three ounces of fluid extract to fourteen of syrup, dose, two to five drams.

Rosemary (*Rosemarinus Officinalis*). — This evergreen shrub grows on the borders of the Mediterranean, and is cultivated in Europe and this country. It is stimulant, antispasmodic, and emmenagogue. It is not used in this country, however, except to perfume ointments, tinctures, and syrups.

Round-Leaved Pyrola (*Pyrola Rotundifolia*). — This perennial shrub grows in various parts of our country, and bears white flowers in June. It is called *canker-lettuce*, *pear-leaf wintergreen*, etc. Its medicinal properties are those of a tonic, astringent, antispasmodic, and diuretic. Used in decoction for epilepsy and other nervous disorders; also for gravel, and other diseases of the bladder and kidneys. The decoction may be used, too, as a wash for ulcerations of the mouth, indolent ulcers, and chronic ophthalmia. The decoction may likewise be used in making poultices for painful swellings, boils, and carbuncles. It may be taken in doses of from one to four ounces.

Rue (*Ruta Graveolens*).—Rue has the medicinal virtues of the antispasmodics, anthelmintics, and emmenagogues. In large doses it is poisonous. It is useful in wind-colic, worms, hysterics, epilepsy, etc. Dose of the leaves, from ten to fifteen grains; of the infusion, from one to two ounces. Use with care.

Saffron (*Crocus Sativus*).—This is a native of Greece and Asia Minor; it is also cultivated in France, England, and America, as well as in other countries. It has been thought to be stimulant and antispasmodic in small doses, relieving pain, and producing sleep; in large doses, giving rise to headache, and producing stupor. In the general judgment of the profession it is now considered, however, as having very little activity. It is accordingly not much used, except in domestic practice, where it has some reputation among nurses for its power to bring out measles, and other eruptions. It is also thought to be beneficial in amenorrhœa, dysmenorrhœa, chlorosis, and hysteria. It is chiefly used at present to impart flavor and color to tinctures.

Preparations.—Fluid extract, dose, twenty to forty drops; tincture, dose, half a dram to a dram; infusion, one dram to a pint of water, dose, one to two ounces.

Sage (*Salvia Officinalis*).—The tops and leaves of this well known garden plant are aromatic, astringent, diaphoretic, and slightly tonic. The infusion is useful in debilitated conditions of the stomach, attended with flatulence; it frequently relieves nausea; the cold infusion checks and sometimes entirely removes the night-sweats of hectic. The infusion is useful as a gargle in inflammation of the throat, particularly if united with a little honey and alum. Dose of the infusion, from one to three fluid ounces.

Sarsaparilla (*Smilax Officinalis*).—Grows in swamps and hedges in the Middle and Southern States. The root has long been held in esteem as an alterative, diuretic, and demulcent, being used in scrofula, chronic rheumatism, and affections of the skin; but its most extensive and useful application has been found to be in the treatment of secondary and tertiary syphilis; and especially in the broken condition of the system which follows the use of mercury in these affections.

Preparations.—Fluid extract, dose, one dram; fluid extract of sarsaparilla and dandelion, dose, one dram; solid extract, dose, five to twenty grains; infusion, dose, two to three ounces.

Sassafras (*Laurus Sassafras*).—This tree is common in the United States. The bark of the root, which is the medicinal part, is alterative diuretic, diaphoretic, and a warm aromatic stimulant. It is mainly used to improve the flavor of other medicines, and also as a constituent of those compounds which are recommended in chronic

rheumatism, syphiloid affections, eruptions of the skin, and scurvy.

Preparations. — Fluid extract, dose, one to two drams; tincture, six ounces to a pint of alcohol, dose, half an ounce to an ounce; in fusion, two ounces to a pint of water, to be drunk as desired.

Savin (*Juniperus Sabina*). — An evergreen shrub, growing in Europe and North America. The tops and leaves are diuretic, diaphoretic, emmenagogue, and anthelmintic. The warm infusion promotes menstruation, and destroys worms. Care should be taken never to administer this medicine during pregnancy, its effects being violent and dangerous.

Preparations. — Fluid extract, dose, ten to twenty drops; solid extract, dose, one to three grains; tincture, four ounces to a pint of diluted alcohol, dose, half a dram to a dram and a half; infusion, half an ounce to a pint of water, dose, half an ounce to an ounce. The following mixture is useful in amenorrhœa: fluid extract of savin, half a dram; fluid extract of ginger, one dram; sulphate of potassa, two drams. Mix. Dose, half a dram twice a day. The oil of savin has properties similar to those of the leaves. Dose, from two to five drops, on sugar.

Scammony (*Convolvulus Scammonia*). — This plant is a native of Syria and the neighboring countries. The medicinal part is the hardened juice of the fresh root. It is an energetic cathartic, producing griping, and sometimes operating with decided harshness, on which account it is generally combined with other medicines which lessen the severity of its action. The dose is from five to fifteen grains.

Scullcap (*Scutellaria Lateriflora*, Fig. 233). — An indigenous plant, flowering in July and August. The whole herb is used. It is a valuable nervine, tonic, and antispasmodic; while it gives support to the nerves, it imparts both quietness and strength to the whole system, and does not, like other nervines, leave the patient excited and irritable. It finds its use in the treatment of neuralgia, chorea, convulsions, lockjaw, and most other diseases of the nervous system.



FIG. 233. SCULLCAP.

Preparations. — Fluid extract, dose, half a dram to a dram; compound fluid extract, dose, half a dram to a dram; tincture, four ounces to a pint of diluted alcohol, dose, one to two drams; infusion, dose, a wineglassful three times a day; scutellarin, the active principle, dose, two to five grains.

Seneka (*Polygala Senega*). — An indigenous plant, commonly called *snakeroot*, the root of which is used in medicine. It is a stim

ulating diuretic and expectorant, and in large doses an emetic and cathartic. It excites all the secretions. It is useful in chronic bronchitis, and in other chronic affections of the breathing-tubes.

Preparations. — Fluid extract, dose, twenty to twenty-five drops; infusion, dose, one ounce to an ounce and a half; syrup, four ounces of fluid extract to twelve ounces simple syrup, dose, half a dram to a dram. The following is a very good expectorant cough preparation: fluid extract of seneka, three drams; fluid extract of squill, half a dram; syrup of tolu, two drams; paregoric, two drams; carbonate of ammonia, twenty grains; water, four and a half ounces. Mix. Dose, one dram.

Senna (*Cassia Acutifolia*). — Grows abundantly in Upper Egypt. The leaves are the medicinal part. It is a mild, active, and certain cathartic, and is much used in combination with other medicines, particularly epsom salts. The addition of cloves, ginger, cinnamon, and other aromatics, removes all its tendency to griping, and makes it a safe and gentle yet active purgative, calling for an evacuation of the bowels.

Preparations. — Fluid extract, dose, one to two drams; fluid extract of senna and jalap, dose, half a dram to a dram; solid extract, dose, three to five grains; tincture, three ounces to thirteen ounces of diluted alcohol, dose, half an ounce to an ounce; infusion, two ounces to a pint of water, dose, half an ounce to an ounce.

Shrubby Trefoil (*Ptelea Trifoliata*). — This shrub, which grows in the West, is called *wafer-ash* and *wingseed*. Its bark and root have tonic properties, and are used in intermittent and remittent fevers, and wherever nature needs a lift in getting up from exhausting complaints. The medicine, like other tonics, improves the appetite and digestion. Dose of the solid extract, from three to five grains, three or four times a day; of the cold infusion, a tablespoonful every two or three hours.

The oleo-resinous principle of the crude bark is called ptelein, and is a powerful tonic. Dose, one or two grains three or four times a day.

Skunk-Cabbage (*Symplocarpus Fœtidus*, Fig. 234). — A perennial plant, growing in moist places throughout the United States; sometimes called *meadow-cabbage*. The root is stimulant, expectorant, antispasmodic, and slightly narcotic. It is given for pulmonary and bronchial affections, epilepsy, hysterics, asthma, whooping-cough, and irritable nerves.

Preparations. — Fluid extract, dose, twenty to fifty drops; tincture, three ounces to a pint of alcohol, dose, half a dram to a dram; infusion, dose, one to one and a half ounces; syrup, two ounces of fluid extract to eight ounces of simple syrup, dose, two to three drams. For asthma and cough, and to promote expectoration and remove

tightness across the chest, the following is a very good compound preparation: one ounce each of the fluid extract of skunk-cabbage, lobelia, bloodroot, pleurisy-root, and ginger, one pint of water, and three pints of alcohol. Dose, two to three drams.

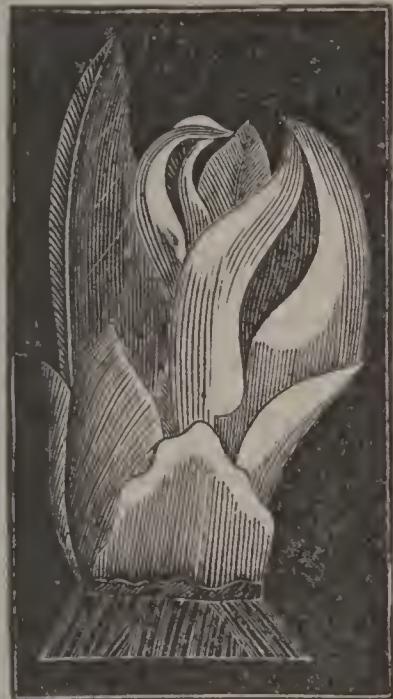


FIG. 234. SKUNK-CABBAGE.



FIG. 235. SLIPPERY ELM.

Slippery Elm (*Ulmus Fulva*, Fig 235).—The inner bark of this well-known tree is nutritive, demulcent, emollient, and slightly expectorant and diuretic. It is valuable as a demulcent drink in inflammations of the lungs, stomach, bowels, bladder, and kidneys; also for coughs, strangury, dysentery, and the summer complaints of infants. It makes a valuable poultice for various purposes.

Small Spikenard (*Aralia Nudicaulis*).—This plant grows throughout the United States, from Canada to the Carolinas, in rocky woods. It is called *false sarsaparilla* and *wild sarsaparilla*. The root is a gentle stimulant, diaphoretic and alterative. It is used in domestic practice, and by some physicians, in rheumatism, syphilis, and cutaneous diseases. The American spikenard, *Aralia racemosa*, resembles the small spikenard in medicinal properties. Either of these roots is valuable in chronic affections of the lungs and air-tubes.

Soap (*Sapo*).—Soap is laxative, antacid, and antilithic, and is much used in combination with cathartics, to lessen the severity of their action. In mesenteric fever, advantage is derived from rubbing the tumid belly of children with a strong lather of soap, morning and evening; and few things are more effectual in removing hardened feces from the rectum in cases of obstinate costiveness than an injection of soap-suds. Soap is now made out of so many kinds of fat that care should be taken to use as medicine only the best Castile.

Sodium.—This is a soft white metal. United with oxygen in the proportion of one equivalent each, it forms the alkali, *soda*. The following are the principal preparations of soda used in medicine:—

Bicarbonate of Soda (*Sodæ Bicarbonas*).— This is a white, inodorous powder, sometimes called *supercarbonate of soda*. It is antacid, antilithic, and slightly diuretic. It is chiefly used in preparing what are called soda-powders, and in various preparations of medicine, when an antacid is required. It is also taken simply dissolved in water, for acidity of the stomach.

Borate of Soda (*Sodæ Boras*). — This is everywhere known by the name of *borax*. It exists naturally formed in various parts of the world, and is likewise manufactured. It is a mild refrigerent and diuretic; also emmenagogue, promoting menstruation, facilitating parturition, and favoring the expulsion of the after-birth by its specific influence upon the womb. It has considerable reputation in the treatment of urinary diseases, particularly those connected with an excess of uric acid. The dose is from twenty to twenty-five grains in solution. Combined with rose-water, honey, and various other things, according to circumstances, borax makes a valuable wash for inflammatory affections of the mouth and throat, skin-diseases, etc.

Chloride of Sodium (*Sodii Chloridum*). — This is the chemical name of *muriate of soda* or *common salt*. In small doses, it is tonic, alterative and anthelmintic. It checks bleeding from the lungs, when taken in teaspoonful doses. The dose as an alterative is from ten to sixty grains. As moderately used in food by most civilized people, it promotes digestion and improves the general health.

Sulphate of Soda (*Sodæ Sulphas*). — This has a very pretty name, but it will not sound half as well to thousands of young persons, when they are told that it is the well-known *Glauber's salts*. From half an ounce to an ounce of it dissolved in half a tumblerful of water acts as a cathartic; a smaller dose, as a laxative and diuretic. Its nauseous and bitter taste may be somewhat concealed by a little cream of tartar or lemon-juice.

Sulphite of Soda (*Sodæ Sulphis*). — This preparation is in the form of transparent crystals, and is very soluble in water. In doses of sixty grains, this is said to have been used with success in frothy vomitings; it is also well spoken of as a remedy in acute rheumatism, and as a wash in thrush and some diseases of the skin.

Tartrate of Potassa and Soda (*Sodæ et Potassæ Tartras*). — This is one of the mildest and most cooling purgatives among the salts. It is known as *Rochelle salt*, and generally agrees well with irritable and delicate stomachs. Dose, from four drams to two ounces, in a tumblerful of water. The gentle physic called *Seidlitz powders* is composed of two drams of rochelle salt and two scruples of bicarbonate of soda in a blue paper, and thirty-five grains of tartaric acid in a white paper. The contents of each paper is dissolved in half a tumbler of water by itself; one solution is then poured into the other, and the whole is drunk during the effervescence.

Solomon's Seal (*Convallaria Multiflora*). — This is one of our own perennial plants, and is found in various parts of the country. The root is tonic, mucilaginous and astringent. It acts especially upon mucous tissues, and has therefore found its use in chronic dysentery and piles, and in chronic inflammation of the stomach and bowels. Dose of the decoction, or infusion, from one to four fluid ounces, three or four times a day. Large doses purge and vomit. The decoction applied locally, relieves the inflammation caused by the poison ivy.

Solution of Arsenite of Potassa (*Liquor Potassæ Arsenitis*). — This is known under the names of *arsenical solution* and *Fowler's solution*. It is a transparent liquid, having the color, taste and smell of spirits of lavender. It has the general action upon the human body of the arsenical preparations. It is the preparation generally resorted to where arsenic is given internally, and is used with considerable success in intermittent fever, leprosy and several other skin diseases, St. Vitus's dance, periodical headache, and some other complaints. The dose is from three to five drops, three times a day, given in water; generally, it is better not to go beyond five drops. Sometimes it disturbs the stomach and binds the bowels, producing headache, dizziness and confusion of mind. When such effects follow its use, it must be laid aside and a purgative given. After an interval of two weeks, it may be resumed in smaller doses. It often requires to be used for several months.

Spanish Flies (*Cantharis Vesicatoria*). — These insects are of a beautiful, shining, golden-green color. They attach themselves to such trees, in France, Spain and Italy, as the white poplar, elder, privet and lilac, upon the leaves of which they feed. They make their appearance in swarms upon these trees in May and June, and are shaken off in the morning while torpid with the cold. Internally administered, they are a powerful stimulant, exercising a peculiar influence over the urinary and genital organs. In large doses, they excite violent inflammation of the alimentary canal and urinary organs, strangury, irritation of the sexual organs, headache, delirium, and convulsions; also painful priapism, vomiting, bloody stools, salivation, fetid breath, hurried breathing, and difficulty of swallowing. They are given internally for chronic gonorrhœa, leucorrhœa, seminal weakness, and paralysis of the bladder. Dose of the powder, from half a grain to a grain; of the tincture, from twenty to fifty drops. Solution of potassa given every hour, in thirty-drop doses, is a remedy for strangury produced by cantharides. Spanish flies are used externally, in the form of blistering plaster; also in the form of tincture, mixed with various solutions, to produce irritation and redness of the skin.

Spearmint (*Mentha Viridis*). — This has carminative, diuretic and antispasmodic virtues. The warm infusion of it is much em-

ployed in domestic practice to produce perspiration after taking cold, and while suffering from feverish symptoms from various causes. The oil of spearmint has similar properties with the herb, and may be taken in five- to eight-drop doses, on sugar. One ounce of the oil of spearmint dissolved in a pint of alcohol, constitutes the essence of spearmint.

Spermaceti (*Cetaceum*). — This is a white crystalline substance obtained from the head of the spermaceti whale. In household practice, it is considerably used for the coughs and colds of children, being generally simmered with molasses or white sugar. It forms a part of several cerates and ointments.

Spider's Web (*Tela Araneæ*). — The web of the black or brown spider, gathered in barns, cellars, etc., is sometimes given in five- or six-grain doses, in pill form, and it is said with good effect, in periodical headache, hysterics, St. Vitus's dance, asthma, and fever and ague. It is likewise applied externally to check bleeding. Care should be taken to have it clean and free from dust.

Spirit of Nitric Ether (*Spiritus Ætheris Nitrici*). — The general reader will know this article better under the name of *sweet spirits of nitre*. It is diuretic, diaphoretic, antispasmodic and stimulant, and in large doses, a narcotic poison. It is much used in diseases of the urinary organs, either alone or combined with sedatives, and other diuretics. Dose, from twenty to thirty drops, to be taken in water, three or four times a day.

Sponge (*Spongia*). — When burned, this is used as an alterative in scrofula, scrofulous tumors, goitre, and obstinate diseases of the skin. It is much employed by homœopathic physicians, though it has much less remedial power than iodine. Dose, one to two drams, mixed with honey or syrup.

Spurred Rye (*Secale Cornutum*). — This is a diseased product of rye, known by the name of *ergot*. This article has a peculiar effect upon the womb, causing it to contract with great energy, when given in full doses. It should never be given, however, continuously, for a great length of time, as it has been known, when so used, to produce dry gangrene, typhus fever, and nervous disorders connected with convulsions. Such were its effects in certain provinces of France, in consequence of the use of rye bread contaminated with it. It is useful in excessive uterine hemorrhage, which it arrests by causing the womb to contract, and thus to condense its tissue and close up its bleeding vessels. It has also been successful in bleeding from the lungs.

Preparations. — Fluid extract, dose, half a dram to a dram; tincture, four ounces to a pint of diluted alcohol, dose, two and a half to five drams; infusion, dose, one to two ounces; wine, five ounces of

fluid extract to a pint of sherry wine, dose, two to three drams, in cases of labor; for other purposes, one to two drams.

Squill (*Scilla Maritima*).—A perennial plant growing in countries on the Mediterranean. In large doses it is emetic and purgative; in small doses expectorant and diuretic. It is used in pulmonary affections to increase expectoration, and in dropsical complaints to augment the secretions of the kidneys. Dose of the dried root, one to five grains, generally to be united with nitre or ipecac.

Preparations.—Fluid extract, dose, as an expectorant and diuretic, two to six drops; as an emetic, twelve to twenty drops; compound fluid extract, dose, ten to twenty drops; tincture, two ounces to a pint of diluted alcohol, dose, twenty to thirty drops; syrup, dose, a quarter to half a dram.

Star-Grass (*Aletris Farinosa*, Fig. 236).—This plant is found in dry soils throughout most parts of the United States, and called *unicorn-root*, *ague-root*, and *crow-corn*. The root is an intensely bitter tonic, and is used to improve the tone of the stomach, and for flatulent colic and hysterics. It is said also to give tone to the female generative organs, affording a protection against miscarriage. The Eclectics call it one of their best agents in chlorosis, suppressed menstruation, engorgement and falling of the womb, and painful menstruation. Dose of the powdered root, from five to ten grains, three times a day.



FIG. 236. STAR-GRASS.

Preparations.—Fluid extract, dose, ten to twenty drops; tincture, two ounces to a pint of diluted alcohol, dose, half a dram to a dram; infusion, two drams to a pint of water, dose, one or two ounces; syrup, dose, one to two drams; aletridin, the active principle, dose, one to three grains.

St. Ignatius' Bean (*Faba Sancti Ignatii*).—The seeds are the part used, and are the product of the *Ignatia Amara*,—a tree of middle size, growing in the Philippine Islands, and is a species of the *strychnos*. These seeds possess a large amount of strychnine, and consequently, in medicinal doses, are a powerful nervine tonic, and are used for improving the digestive functions, and for rousing and strengthening the whole system when prostrated by nervous complaints.

Preparations.—Fluid extract, dose, five to ten drops; solid extract, dose, half a grain to a grain and a half.

Storax (*Styrax Officinale*).—This is the hardened juice of the storax, a native of the countries along the Mediterranean. It is a stimulant and expectorant, and is used for chronic bronchitis, laryngitis, and cough. The *liquid storax* is sometimes employed instead

of copaiba in gonorrhœa and gleet. The dose is from ten to fifteen grains. Storax is a constituent in the compound tincture of benzoin.

Stramonium (*Datura Stramonium*, Fig. 237).— This annual



FIG. 237. STRAMONIUM.

plant is most known in this country by the name of *Jamestown weed*; in England by that of *thornapple*. The leaves and seeds are medicinal. Stramonium is a powerful narcotic; it is also antispasmodic, anodyne, and sedative. It is used in various nervous affections, as chorea, epilepsy, palsy, tetanus, and mania. It is much used for relieving acute pains, etc. Taken in large doses, it is a powerful poison.

Preparations.— Fluid extract, dose, five to fifteen drops; solid extract, dose, half a grain to a grain; tincture, two ounces to a pint of alcohol, dose, half a dram to a dram, and to be gradually increased. Use with care.

Sulphur.— This is considerably used in medicine, being laxative, diaphoretic, and resolvent. It is chiefly used for piles, chronic rheumatism, gout, asthma, and those affections of the breathing organs not attended with acute inflammation. Externally and internally, it is much employed in skin-diseases, particularly for itch, for which it is a specific. In these affections, it is frequently applied in the form of sulphur baths. The dose of sulphur is from one to three drams, mixed with syrup, molasses, or milk. When sublimed, this article is called *flowers of sulphur*, which is the form in which it is chiefly used in medicine.

Sumach (*Rhus Glabrum*).— Found in almost all parts of the United States in old, neglected fields, and by the side of fences. The bark and berries are astringent, tonic, antiseptic, and diuretic, and are used in diarrhœa, dysentery, gonorrhœa, whites, hectic fever, and scrofula. The berries make a valuable gargle in quinsy and ulcerations of the mouth and throat, and also a useful wash for ringworm, tetter, and ulcers. The excrescences which grow upon the leaves have nearly as much astringency as galls, and when pulverized and mixed with lard, have a similarly soothing effect upon piles.

Preparations.— Fluid extract, dose, one to two drams; tincture, four ounces to thirteen ounces of diluted alcohol, dose, half an ounce to an ounce.

Sunflower (*Helianthus Annuus*).— The seeds and leaves of this plant are expectorant and diuretic, and are useful in several pulmonary affections. The seeds yield a fixed oil, in which their medicinal virtues are chiefly found. In doses of ten or fifteen drops, this oil acts favorably upon inflamed mucous surfaces, and in doses twice as large it greatly augments the flow of urine.

Swamp Dogwood (*Cornus Sericea*).—This is found in damp places, and along the banks of rivers, in various parts of our country, and is known as *red osier*, *red willow* and *rose willow*. The bark is tonic, stimulant and astringent, and has been used for similar purposes with dogwood-bark; it is well spoken of, also, for dyspepsia, diarrhœa, malignant fevers, and as an external application to foul and ill-conditioned ulcers. Dose of the powdered bark, from twenty to fifty grains; of the infusion, from two to three fluid ounces.

Swamp Milkweed (*Asclepias Incarnata*).—This is a native of the United States, and bears red flowers from June to August. It has the name of *white Indian hemp*. The root is emetic, cathartic, and diuretic, and is useful in asthma, bronchitis, rheumatism, syphilis, and worms.

Preparations.—Fluid extract, dose, twenty to thirty drops; solid extract, dose, three to five grains; tincture, two ounces to a pint of diluted alcohol, dose, one and a half to three drams; infusion, dose, three to five drams; syrup, four ounces fluid extract to twelve ounces simple syrup, dose, half a dram to a dram.

Sweet Fern (*Comptonia Asplenifolia*).—This shrub, growing in stony pastures in New England and Virginia, is tonic, astringent, alterative and aromatic, and is used in diarrhœa, dysentery, cholera-infantum, rheumatism, and debility after fevers. Dose of the decoction, from one to three fluid ounces, three or four times a day.

Sweet Flag (*Acorus Calamus*).—Found in damp places, in most parts of the world. The root is stimulant, tonic, and aromatic; useful in wind colic, weakened conditions of the stomach, and dyspepsia. Dose of the root, from twenty to sixty grains; of the infusion, from two to three fluid ounces.

Sweet Gum (*Liquidamber Styraciflua*).—This tree grows in the Middle and Southern States. Being wounded, it yields a yellowish-white, honey-like balsam, which hardens into a gum. This, melted with equal parts of lard or tallow, forms an ointment which is used in some parts of the country for piles, ringworm of the scalp, fever-sores, and other complaints. Used internally, it has very nearly the same effects as storax.

Tag Alder (*Alnus Rubra*).—This shrub grows in swamps and other damp places, in northern United States. The bark is alterative, emetic, and astringent. It is used in scrofula, secondary syphilis, herpes, impetigo, and other skin-diseases.

Preparations.—Fluid extract, dose, one to two drams; infusion, two ounces to a pint of water, dose, one to one and a half ounces; alnuin, the active principle, dose, one to two grains.

Tansy (*Tanacetum Vulgare*).—Tansy is a perennial herb, having tonic, emmenagogue, and diaphoretic properties; the cold infusion

being tonic, and useful in dyspepsia, wind in the stomach, jaundice, and worms; the warm infusion, diaphoretic and emmenagogue. Dose of the infusion, from one to three fluid ounces, two or three times a day.

Tar (*Pix Liquida*). — The medicinal qualities of tar are like those of turpentine, and it is sometimes used in old chronic coughs and bronchitis. The vapor of boiling tar was once thought to be very serviceable in bronchial diseases, when inhaled. Doubtless it is useful in some cases, but its virtues have been extolled above their merits. In the form of ointment it has real efficacy in scald head and tetter.

Thimbleweed (*Rudbeckia Laciniata*). — The whole of this herb is balsamic, diuretic, and tonic, and in the form of decoction, used freely, is said to have been found useful in some urinary complaints, as Bright's disease, strangury, etc.

Tobacco (*Nicotiana Tabacum*). — The leaves of tobacco are acrid, narcotic, and poisonous, and are chiefly used in the form of ointment, in skin diseases, etc. Its poisonous qualities, however, render it dangerous when much used, even externally. Nervous people should not smoke. Chewing is not only an unhealthy, but a disgusting habit.

Trailing Arbutus (*Epigiea Repens*). — This grows in sandy woods and rocky soils, its flowers appearing in early spring, and exhaling a spicy fragrance. The leaves are diuretic and astringent, and are very useful in gravel, and most diseases of the urinary organs, being regarded in some cases superior to uva-ursi and buchu.

Preparations — Fluid extract, dose, one to two drams; infusion, dose, two to three ounces.

Tapioca (*Janipha Manihot*, Fig. 238). — This plant grows in the West Indies and Brazil. It is cultivated chiefly on account of the root, which is largely used as an article of food, particularly for the sick, or rather for those recovering from sickness. The starch which it contains is separated by washing, scraping, grating, and grinding, and is in the form of hard, white, rough grains. It is prepared for use by boiling; and, in debility and low forms of disease, may have the addition of wine, nutmeg, or other aromatics.



FIG. 238. TAPIOCA.

Tulip Tree (*Liriodendron Tulipifera*). — This is a large and elegant tree growing in many parts of the country, and called *poplar* and *white poplar*. The bark of the root is aromatic, stimulant, and tonic, and in warm infusion, diaphoretic. It is used in fever and ague, chronic rheuma-

tism, and chronic diseases of the stomach and bowels. Dose of the powdered bark, from a scruple to two drams; of the infusion, from one to two fluid ounces.

Turkey Corn (*Corydalis Formosa*).—This perennial plant is called *wild-turkey pea* and *stagger-weed*, and grows in rich soils in the Southern and Western States. The tuber, which is the medicinal part, should only be collected when the plant is in flower. It is tonic, diuretic, and alterative. It is much valued as a remedy in syphilis and scrofula.

Preparations.—Fluid extract, dose, ten to thirty drops; tincture, three ounces to a pint of diluted alcohol, dose, half a dram to two drams; corydalin, the active principle, dose, half a grain to a grain. A valuable alterative for syphilis is made by uniting eight grains of corydalin with ten grains of hydrastin, and dividing into twelve powders. Dose, one powder three or four times a day.

Turmeric (*Curcuma Longa*).—This is a native of the East Indies and Cochin China. The root is a stimulant aromatic and tonic, somewhat like ginger, employed in debilitated states of the stomach, etc.

Preparations.—Fluid extract, dose, two or three drams; tincture, two ounces to twelve ounces of diluted alcohol, dose, one and a half to two ounces; infusion, dose, two to four ounces.

Valerian (*Valeriana Officinalis*).—This is a European plant, flowering in June or July. The root is tonic, nervine, and antispasmodic, and is much used in cases of irregular nervous action, particularly morbid nervous vigilance, or hypochondria, epilepsy, lowness of spirits, and nervous headache.

Preparations.—Fluid extract, dose, half a dram to a dram; solid extract, dose, three to eight grains; tincture, four ounces to a pint of diluted alcohol, dose, two to three drams; infusion, half an ounce to a pint of water, dose, two to three ounces; syrup, four ounces of fluid extract to a pint of simple syrup, dose, two to three drams.

Vervain (*Verbena Hastata*).—A perennial plant, common in the United States. The root is tonic, emetic, expectorant, and sudorific. It is used in intermittent fevers, colds, and obstructed menstruation, in the form of warm infusion. The cold infusion is a good tonic in loss of appetite, debility, etc. Dose of the powdered root, one or two scruples; of the infusion, from two to three ounces, three or four times a day.

Vinegar (*Acetum*).—This is refrigerant, diuretic, astringent, and tonic; used in fevers and inflammatory complaints, likewise in scurvy and typhus, as an antiseptic. It has been found useful in dysentery and scarlet fever, saturated with common salt. Externally, it is applied to bruises, inflammations, sprains, and swellings. It sometimes has a good effect as a gargle in putrid sore throat, etc., and as a cooling wash in headache during fevers.

Virginia Snake-root (*Aristolochia Serpentaria*, Fig. 239). — This is a perennial herb of the Middle and Southern States. The root is stimulant, tonic, and diaphoretic. It is used in typhoid fevers, when the system needs support, but cannot bear active stimulation. Combined with Peruvian bark, it is also used in intermittent fevers. The cold infusion is employed in some forms of dyspepsia; likewise as a gargle in malignant sore throat.

Preparations. — Fluid extract, dose, one-quarter to half a dram; tincture, three ounces to a pint of diluted alcohol, dose, one to two drams; infusion, half an ounce to a pint of water, dose, one to two ounces, in low forms of fever. The following is a good compound tincture: half an ounce each of fluid extract of snake-root, fluid extract of ipecac, fluid extract of saffron, fluid extract of ladies' slipper, together with half an ounce of camphor, and one and a half pints of diluted alcohol; dose, a dram to a dram and a half.



FIG. 239. VIRGINIA SNAKE ROOT.



FIG. 240. WATER-HOREHOUND.

Water-Horehound (Fig. 240). — This article has been described under *Bugle-Weed* (*Lycopus Virginicus*). See *Bugle-Weed*.

Water-Pepper (*Polygonum Punctatum*). — This annual plant is called *smart-weed*, and grows throughout our country, in low grounds, and along ditches and brooks. It has a pungent, biting taste, and is stimulant, diuretic, emmenagogue, antiseptic, and vesicant. It is used in coughs, colds, gravel, and womb-complaints.

Preparations. — Fluid extract, dose, ten to forty drops; solid extract, dose, two to three grains; tincture, four ounces to a pint of diluted alcohol, dose, half a dram to two drams; infusion, half an ounce to a pint of water, dose, half an ounce to an ounce.

Wahoo (*Euonymus Atropurpureus*). — A small shrub growing in woods in many parts of the United States. The bark of the root is a bitter tonic, laxative, alterative, diuretic, and expectorant, and is advantageously used in pulmonary affections, dropsy, constipation, torpidity of the liver, dyspepsia, and intermittent fevers.

Preparations. — Fluid extract, dose, one to two drams ; tincture, four ounces to twelve ounces of diluted alcohol, dose, half an ounce to an ounce.

Wax. — The yellow and white wax are chiefly used as ingredients of plasters and ointments.

White Hellebore (*Veratrum Album*). — This is a European perennial plant, the root of which is a violent emetic and purgative, and in large doses is poisonous ; not often used, except externally, in the form of ointment or decoction, for the cure of itch and some other skin-diseases.

White Oak (*Quercus Alba*). — The inner bark of the white oak is astringent, tonic, and antiseptic, and has been used in intermittent fever, chronic diarrhœa, chronic mucous discharges, and passive hemorrhages. As a wash applied externally it sometimes arrests night-sweats, and as an astringent gargle and injection its use is common for relaxed palate, spongy gums, leucorrhœa falling of the bowel, etc.

Preparations. — Fluid extract, dose half a dram to a dram ; solid extract, dose, ten to fifteen grains ; tincture, two ounces to a pint of diluted alcohol, dose, half an ounce to an ounce.

White Pond-Lily (*Nymphœa Odorata*). — This grows in ponds and marshes in many parts of our country. The root is demulcent, anodyne, astringent, and alterative ; used in dysentery, diarrhœa, gonorrhœa, whites, and scrofula. An infusion is sometimes used as a gargle in ulcers of the mouth and throat, and as an injection in leucorrhœa. Dose of the infusion, from two to three fluid ounces.

Wild Cherry (*Prunus Virginiana*). — This tree grows extensively in the American forests, flourishing where the soil is fertile and the climate temperate. The inner bark is tonic and stimulant to the digestive organs, and sedative to the nerves and the circulation. It is much used in consumption, scrofula, and dyspepsia.

Preparations. — Fluid extract, dose, two to three drams, compound fluid extract, dose, half a dram to a dram ; infusion, half an ounce to a pint of water, dose, one ounce ; syrup, three ounces of fluid extract to thirteen ounces of simple syrup, dose, two drams to an ounce.

Wild Cucumber (*Momordica Elaterium*). — This, sometimes called *squirting cucumber*, is a native of the south of Europe, and is cultivated in Great Britain. It is a powerful hydragogue cathartic, and in large doses causes nausea and vomiting. On account of the watery stools it produces it is much used in dropsical complaints, though the severity of its action forbids its being used alone. Dose, a quarter to half a grain, repeated every hour till it operates ; of elaterin, from a sixteenth to a twentieth of a grain, given in solution.

Wild Ginger (*Asarum Canadense*).—This is known by the names of *coltsfoot* and *Canada snake-root*, and is common in all parts of the country. The root is tonic, stimulant, aromatic, expectorant, and diaphoretic. It is used in pains of the stomach, colic, etc. Dose of the powder, half a dram; of the tincture, half a dram to two drams.

Wild Indigo (*Baptisia Tinctoria*, Fig. 241).—This perennial shrub is found in most parts of the country. The bark of the root is purgative, emetic, stimulant, astringent, and antiseptic. It is chiefly used for its antiseptic properties. For external use it is valuable as a wash or gargle for various ulcers, mercurial sore mouth, and scrofulous and syphilitic ophthalmia.



FIG. 241. WILD INDIGO.

Preparations.—Fluid extract, dose, a quarter to half a dram; tincture, two ounces to a pint of diluted alcohol, dose, two to four drams; infusion, dose, half an ounce; baptisin, the active principle, a quarter to half a grain; gargle, four ounces of fluid extract to twelve ounces of water, to be used as occasion requires.

Wild Yam (*Dioscorea Villosa*).—A perennial vine, found mostly at the South. The root is antispasmodic, and is successfully used in bilious colic. It is said to bring relief in the most violent cases of this complaint. It allays nausea and spasms during pregnancy. It is given in the form of decoction, two or three fluid ounces every thirty or forty minutes. Dose of the tincture, from a quarter of a dram to a dram; of dioscorein, the active principle, one to three grains.

Willow (*Salix Alba*).—The willow is common in Europe and America. Its bark is tonic and astringent, and is used, occasionally, as a substitute for Peruvian bark in intermittent fever. It is also employed in the treatment of chronic diarrhœa and dysentery. Dose of the powdered bark, one dram; of the decoction, one to two fluid ounces. Salicin, the active principle, is given, sometimes, in place of quinine; dose, from two to eight grains.

Wintergreen (*Gaultheria Procumbens*).—This evergreen grows in mountainous, barren regions, throughout our country. The leaves are an agreeable stimulant, aromatic and astringent. Used for chronic diarrhœa, and as an emmenagogue. The oil and essence are useful in flatulent colic; dose of the oil, from five to eight drops, on sugar; of the essence, twenty to thirty drops. Much used to flavor other medicines.

Witch-Hazel (*Hamamelis Virginica*, Fig. 242).—This derives its name from its having fruit and flowers together on the same tree. It is found in most parts of our country. The bark and leaves are

tonic, astringent and sedative. It is used in bleeding from the lungs and stomach, and in diarrhœa, dysentery, and excessive mucous discharges. It is also used in incipient consumption, and for sore mouth, etc.

Preparations. — Fluid extract, dose, one to two drams; infusion, dose, three drams; syrup, four ounces of fluid extract to twelve ounces of simple syrup, dose, one to two drams.

Wolfsbane (*Aconitum Napellus*, Fig. 243). — This has already been described under its other common name, which is *monkshood*. See “Monkshood” for its description.

Wormseed (*Chenopodium Anthelminticum*). — This perennial is called *Jerusalem oak*, and is found in waste places all over the United States. An oil is extracted from the seeds, which, in doses of from three to five drops, morning and evening, for a child, destroys worms. A strong infusion of the tops has a similar effect. The remedy should be used four or five days, and be followed by a purge.



FIG. 242. WITCH-HAZEL.



FIG. 243. WOLFSBANE.



FIG. 244. WORMWOOD.

Wormwood (*Artemisia Absinthium*, Fig. 244). — The tops and leaves of this perennial are tonic and anthelmintic; used in intermittent fever, jaundice, and worms. It restores the appetite in a weakened state of the digestive organs, and is also useful in amenorrhœa. It is excellent applied as a tincture, or in the form of fomentation, to bruises, sprains, and local inflammations.

Preparations. — Fluid extract, dose, one-third to two-thirds of a dram; solid extract, dose, three to five grains; tincture, two ounces to fourteen ounces of diluted alcohol, dose, two to three drams;

syrup, two ounces fluid extract to six ounces of simple syrup, dose, one to two drams.

Yarrow (*Achillea Millefolium*). — A perennial herb, common to the Old World and New, and growing in old fields and along fences. It is tonic, astringent, and alterative, and has been used in intermittent fever, bleeding from the lungs, excessive menstruation, wind colic, and chronic dysentery. Dose of the infusion, a wineglassful three or four times a day.

Yeast (*Cerevisiæ Fermentum*). — Yeast is slightly tonic and stimulating, and has been used with advantage in typhoid fever; also in scarlet fever, and in all diseases where there is a disposition to putridity. The dose is from one to two fluid ounces every two or three hours. It makes an excellent antiseptic poultice for unhealthy and fetid ulcers, especially if combined with powdered slippery-elm bark and charcoal.

Yellow Dock (*Rumex Crispus*, Fig. 245). — The root of this perennial plant is alterative, tonic, diuretic, and detergent, and is regarded as very valuable in the treatment of scrofula, syphilis, leprosy, scurvy, and other skin diseases.



FIG. 245.
YELLOW DOCK.

Preparations. — Fluid extract, dose, one to two drams; solid extract, dose, four to five grains; syrup, four ounces of fluid extract to twelve ounces of simple syrup, dose, half an ounce to an ounce; rumin, the active principle, dose, two to three grains.

Yellow Jessamine (*Gelsemium Sempervirens*). — This abounds in the Southern States, where it is cultivated as an ornamental vine. The root is a powerful febrifuge, narcotic and relaxant, controlling and subduing fever, quieting nervous irritability and excitement, equalizing the circulation, promoting perspiration, and rectifying the secretions. It is much used by the Eclectics of the Western States, but the general judgment of the profession is that it is too powerful a remedy to be safe. My own opinion is, that the American hellebore is equally effective with the yellow jessamine, and that its general use involves far less danger.

Preparations. — Fluid extract, dose, two to ten drops; tincture, four ounces to a pint of alcohol, dose, fifteen to thirty drops, and increase; gelseminin, the active principle, dose, half a grain to a grain and a half.

Yellow Ladies' Slipper (*Cypripedium Pubescens*). — This perennial plant is called *American valerian*, *nerve-root*, etc. The fibrous roots are tonic, nervine, antispasmodic and diaphoretic, and are used in nervous headache, nervous excitability, hysterics, neuralgia, and St. Vitus's dance. Dose of the powder, from ten to twenty grains.

Preparations. — Fluid extract, dose, half a dram to a dram ; solid extract, dose, five to ten grains ; tincture, two ounces to a pint of diluted alcohol, dose, half an ounce to an ounce ; syrup, four ounces of fluid extract to fourteen ounces of simple syrup, dose, two to three drams ; cypripedin, the active principle, dose, two to three grains.

Yellow Parilla (*Menispermum Canadense*). — This is a perennia! plant, growing in woods and near streams, throughout the country. The root has the properties of a tonic, laxative, alterative, and diuretic. It is valued in the treatment of scrofula, syphilis, skin diseases, gout, rheumatism, dyspepsia, general debility and chronic inflammation of the stomach and bowels. Dose of the decoction, from two to three fluid ounces, three times a day ; of the solid extract, from two to three grains.

Zinc. — Several preparations of this metal are used in medicine, as follows :—

Acetate of Zinc (*Zinci Acetas*). — This is used as an external remedy only, generally as an astringent wash for inflammations of the eye, and as an injection in gonorrhœa, but only after the acute stage of these diseases has past. The strength of these solutions generally should be one or two grains to a fluid ounce of soft water.

Chloride of Zinc (*Zinci Chloridum*). — This is a powerful escharotic, and is employed as an external application to cancers and obstinate ulcers. A weak solution of it is occasionally employed in old chronic gleet, also in whites and purulent discharge from the neck of the womb.

Iodide of Zinc (*Zinci Iodidum*). — This is in the form of white needles, and is tonic and astringent. It is not much used, except externally, being applied in a solution of twenty grains to a fluid ounce of water, to enlarged tonsils, by means of a camel's-hair pencil or a piece of sponge tied to the end of a stick.

Oxide of Zinc (*Zinci Oxidum*). — This is an inodorous white powder, insoluble in water and alcohol. It is tonic and antispasmodic, and is given in chorea, epilepsy, whooping-cough, and other similar diseases ; but it is more especially employed to arrest the night-sweats of consumption, for which purpose we have at present no other article of equal efficacy. It is sprinkled externally upon excoriated surfaces, and is used in ointments. Dose, from two to five grains, in the form of pill.

Precipitated Carbonate of Zinc (*Zinci Carbonas Præcipitas*). — This is employed for the same purpose as prepared calamine, being adapted only to external use.

Prepared Calamine (*Calamina Præparata*). — This is in the form of a pinkish or flesh-colored powder, of an earthy appearance. It is employed only as an external application, being dusted on ex-

coriations and superficial ulcerations, as a mild astringent. It should be a very fine powder.

Sulphate of Zinc (*Zinci Sulphas*). — This is a colorless, transparent salt, crystallizing usually in small four-sided prisms. It is tonic and astringent, and in large doses, a prompt emetic. Used as a tonic in cases of debility attended with irritation. In obstinate intermittents, it is sometimes conjoined with sulphate of quinia; it is chiefly employed, however, in such spasmodic diseases as epilepsy, chorea and whooping-cough. As an astringent, it is used externally, being applied in solution to bleeding surfaces, as a wash in ophthalmia, and as an injection in whites and chronic gonorrhœa.

Valerianate of Zinc (*Zinci Valerianas*). — This is in white, pearly scales, with a faint odor of valerianic acid. It is tonic and antispasmodic, and is used in the various nervous affections which accompany chlorosis. Dose, one or two grains, several times a day, in the form of a pill.

Vaseline (*Petrolatum*). — This is a transparent, fat-like substance, obtained in the distillation of crude petroleum. It is very extensively used in the domestic materia medica, in the treatment of colds and many other ailments. Its efficacy has been, however, much overrated, its chief utility being that of a neutral, simple unguent, and as a vehicle for the application of more active remedies, for which purpose it is preferable to the animal fats generally employed.

PREPARATIONS.—PHARMACY.

THE preparation of medicines for use constitutes the art of pharmacy. It is the peculiar business of the apothecary. It will not be necessary in these pages to describe his art, in all particulars, but merely as many of the preparations which it is his duty to prepare as are really needed in the treatment of disease. In doing this, I shall classify the preparations alphabetically, and begin with

Cerates.

THESE substances have a degree of hardness midway between ointments and plasters. They may be spread upon leather or linen, without the use of heat, and they do not melt and run when applied to the skin. They are made of wax, or spermaceti, combined with lard or oil. The articles are melted together by a very gentle heat, and during the process of cooling the whole should be well stirred.

Calamine Cerate.—Prepared calamine and yellow wax, each three ounces; lard, one pound. Melt the lard and wax together. When the mixture begins to thicken, on cooling, gradually stir in the calamine.

This is called *Turner's Cerate*, and is useful for burns, excoriations, superficial ulcers, and sores.

Goulard's Cerate.—Take of solution of subacetate of lead, two fluid ounces and a half; white wax, four ounces; olive oil, nine fluid ounces; camphor, half a dram. Mix the wax, previously melted, with eight fluid ounces of the oil; remove from the fire, and when the mixture begins to thicken, gradually pour in the solution of subacetate of lead, stirring constantly, with a wooden spatula, till it becomes cool. Then add the camphor, dissolved in the remainder of the oil.

This is the *cerate of subacetate of lead*, and is used for excoriations, inflamed burns, scalds and chilblains, and for eruptions of the skin. Excellent for blistered surfaces, indisposed to heal.

Half an ounce of this preparation united with half an ounce of simple cerate, and one dram each of calomel and powdered opium, makes a very valuable remedy for various eruptions of the skin, of a local nature.

Resin Cerate. — Take of resin, five ounces; lard, eight ounces; yellow wax, two ounces. Melt together with a gentle heat, and stir till cool.

This is known as *basilicon ointment*, and is used as a gentle stimulant to blistered surfaces, indolent ulcers, burns, scalds and chilblains.

Compound Resin Cerate. — Take of resin, suet, and yellow wax, each a pound; turpentine, half a pound; flax-seed oil, half a pint. Melt together, strain through linen, and stir till cool.

This, under the name of *Deshler's salve*, is popularly used for similar purposes with the resin cerate.

Savin Cerate. — Take powdered savin, two ounces; resin cerate, a pound. Mix the savin with the cerate, previously softened. Used as a dressing for perpetual blisters.

Simple Cerate. — Lard, eight ounces; white wax, four ounces. Melt together and stir till cool.

Used for dressing blisters, wounds, etc., where it is desirable simply to preserve the moisture of the part, and to exclude the air.

Spanish Flies Cerate, known as *blistering plaster*. Take finely powdered Spanish flies, a pound; yellow wax and resin, each seven ounces; lard, ten ounces. To the wax, resin and lard, previously melted together and strained, add the Spanish flies, and, by means of the most gentle heat, keep the mixture in a fluid state for half an hour, stirring occasionally, then remove the heat and stir till cool.

This can be easily spread without the aid of heat, and is used for the purpose of drawing blisters. It is now, however, superseded in a great degree by various preparations, composed for the most part of *cantharidin*, either dissolved in oil, and applied to the skin by means of a piece of paper saturated with it, or incorporated with wax and spread in a very thin layer upon fine waxed cloth, silk, or paper, constituting the blistering cloth, blistering paper, etc.

Confections, Conserves and Electuaries.

THESE are soft solids, in which medicinal articles are incorporated with sugar, syrup, honey, or some other saccharine matter, for the purpose both of preserving the mass, and of rendering the medicine more palatable and convenient for use.

Aromatic Confection. — Take of aromatic powder, five and a half ounces; powdered saffron, half an ounce; syrup of orange-peel, six ounces; clarified honey, two ounces. Rub the aromatic powder with the saffron; then add the syrup and honey, and beat the whole together in a mortar till they are thoroughly mixed.

Given in debilitated states of the stomach, as a vehicle for other medicines. Dose, ten grains.

Compound Confection of Catechu. — Take of compound powder of catechu, five ounces; simple syrup, five fluid ounces. Add the syrup gradually to the powder, and mix them well.

To be given in diarrhoea and chronic dysentery, in the dose of half a dram to a dram.

Confection of Senna, otherwise called *lenitive electuary*. Take of senna, eight ounces; coriander seeds, four ounces; bruised liquorice-root, three ounces; figs, a pound; pulp of prunes, pulp of tamarinds, pulp of purging cassia, each, half a pound; refined sugar, two pounds and a half; water, four pints. Rub the senna and coriander together and separate ten ounces of the powder with a sieve. Boil the residue with the liquorice-root and figs, in the water, to one half; then press out the liquor and strain. Evaporate the strained liquor, by the most gentle heat, to a pint and a half; then add the sugar and form a syrup. Lastly, rub the pulps with the syrup, added gradually, and, having thrown in the sifted powder, beat all together till well mixed.

This is a pleasant and admirable laxative, being well adapted to the habitual costiveness of pregnant women, and those affected with piles; for this latter purpose, it is still better combined with cream of tartar and sulphur, as described in No. 6 of the prescriptions.

Decoctions.

THESE are solutions of vegetable medicines, obtained by boiling them in water. They differ from infusions, in being subjected to a greater degree of heat, the water during their preparation being kept up to the boiling point. The process should be conducted in a covered vessel, and the boiling must not be continued for a very long time. Medicines whose active principle is volatile are not proper for decoctions, the active principle being driven off by heat and lost.

The usual proportion of vegetable substances used in making decoctions is one ounce to a pint of water, and the dose of the decoction, from one to three ounces.

Essences.

THESE are generally prepared by dissolving one ounce of the essential oils of plants in one pint of alcohol. The oils of lemon, peppermint, sassafras, etc., are made in this way, and their properties, of course, are similar to the oils from which they are prepared. They are generally taken in a little sweetened water, in doses of ten drops to a teaspoonful.

Extracts.

THESE are soft solids, obtained by evaporating the tinctures, or solutions, of vegetable substances. The active principles of dried vegetables can only be extracted by some liquid; this, for preparing

extracts, is either water or alcohol, or a mixture of the two. Those obtained by the use of water are called *aqueous*, or *watery extracts*; those by means of alcohol, *alcoholic extracts*; and those by both alcohol and water, *hydro-alcoholic extracts*.

Fluid Extracts.

THESE are concentrations, into a small bulk, in liquid form, of the active principles of medicinal substances. They are a valuable class of remedies, being in some cases preferable to tinctures, having less alcohol; and better than extracts or decoctions, because not so often injured by heat in their preparation, and not requiring to be taken in large doses. Great skill is required in their preparation, and they should always be obtained from those who have the reputation of making reliable articles.

Fomentations.

FOMENTATION is a sort of partial or local hot bath, and consists either in the application of cloths dipped in hot water, or some hot medicated decoction, and applied to the affected part, or of bitter or anodyne herbs steeped in vinegar or water, and then, while hot, enclosed in a muslin bag, and laid upon the diseased place. In either case, whether the cloths wet in a decoction of the herbs, or the herbs themselves, slightly steeped, be applied in a bag, the application should be as hot as can be borne, and not so moist as to wet the bed or clothes of the patient.

Fomentations act by their warmth and moisture chiefly: and slightly, in some cases, by their medicinal virtues. Their object is to lessen pain and inflammation, by relaxing the parts, and relieving tension and spasm. They may be prepared from equal parts of hops, tansy, and wormwood, or from equal parts of hops, lobelia, and stramonium, etc., etc.

Infusions.

THOSE made of one article only are sufficiently referred to in previous pages. It will only be necessary here to insert such compound infusions as are deemed important.

Compound Infusion of Catechu. — Take of powdered catechu half an ounce, bruised cinnamon a dram; boiling water a pint; macerate for an hour in a covered vessel, and strain. An elegant mode of administering catechu. Dose, from one to two fluid ounces three or four times a day.

Compound Infusion of Gentian. — Take of bruised gentian half an ounce; dried orange-peel and coriander-seeds, bruised, each a dram; diluted alcohol, four fluid ounces; cold water, twelve fluid ounces.

First pour on the diluted alcohol, then, three hours afterward, the water. Let the whole stand twelve hours, and strain. An excellent form for using gentian. Dose, one fluid ounce three or four times a day.

Compound Infusion of Geranium. — Take of geranium root, sweet bugle-leaves, golden-seal root, witch-hazel bark, each, in coarse powder, one ounce; boiling water, four pints. Mix, and allow all to stand in a covered vessel two hours, applying a gentle heat; then strain. Two drams of alum may or may not be added.

Used in chronic diarrhoea and dysentery, in one or two tablespoonful doses, every two or three hours; also as an injection in gleet, whites, falling of the bowel, etc.; and as a gargle in ulcerations of the mouth and throat.

Compound Infusion of Parsley. — Take of parsley roots and seeds and subcarbonate of iron, each two ounces; horseradish-root, one ounce; squill, juniper-berries, white mustard-seed, mandrake root, and queen of the meadow root, each half an ounce; coarsely bruise these articles, and place them in boiling cider, and expose them for twenty-four hours to a very gentle heat, in a covered earthen vessel. The cider should be sparkling and tart. Let the articles stand in the cider.

Useful in dropsy. Dose, one or two fluid ounces three or four times a day.

Compound Infusion of Senna. — Take of senna and manna, each one ounce; jalap, cream of tartar, and caraway seeds, bruised, each two drams; boiling water, one pint. Add all the ingredients to the water, in a covered vessel, and let them stand twelve hours. Then add four ounces of elixir salutaris.

This is a valuable, and not disagreeable, gentle physic for various purposes. Dose, from one to three ounces.

Compound Infusion of Trailing Arbutus. — Take of queen of the meadow root, dwarf-elder bark, marshmallow root, and trailing arbutus, each, coarsely bruised, half an ounce; add to them one pint of boiling water and one pint of Holland gin, and steep by the fire four hours, in a closely covered vessel. Strain, and sweeten with honey.

Excellent for gravel, suppression of urine, scalding of urine, and various other disorders of the urinary organs. Dose, from an ounce to a wineglassful, with more or less frequency, according to the urgency of the case.

Injectiōns. — Clysters.

THESE are preparations to be introduced into the lower bowel by means of a syringe. A sufficient number of them are given among the recipes. It is not necessary to repeat them here.

Liniments.

THESE are liquid preparations, generally a little thicker than water, and thinner than oils, intended only to be applied to inflamed, painful, or swelled parts. They are designed to soothe, or quiet, or stimulate, or make red the part to which they are applied; and are rubbed on with the hand, or a piece of flannel or cotton, and frequently in connection with heat, by sitting or standing before a fire.

A large number of liniments are given under the head of recipes. To those I add a few valuable ones here.

Camphor Liniment. — Take six drams of camphor, and dissolve it in one fluid ounce of chloroform, and add to this one fluid ounce of olive oil.

For sprains, neuralgia, rheumatism, etc.

Compound Camphor Liniment. — Take two ounces and a half of camphor, a fluid dram of oil of lavender, seventeen fluid ounces of alcohol, and three fluid ounces of strong solution of ammonia. dissolve the camphor and oil in the alcohol; then add the ammonia, and shake till they are mixed.

To be used as a rubefacient and anodyne for local pains, particularly rheumatism.

Compound Liniment of Ammonia. — Take five fluid ounces of strong water of ammonia, two fluid ounces of tincture of camphor, and one fluid ounce of spirit of rosemary. Mix them well together.

This is used as a prompt and powerful rubefacient, or even vesicatory, in neuralgia, rheumatism, gout, spasms, and inflammations.

Croton Oil Liniment. — Take one fluid ounce of croton oil and seven fluid ounces of oil of turpentine. Mix, and shake them well together.

A good rubefacient and pustulating preparation to apply to the chest and other parts.

Liniment of Opium. — Take six ounces of Castile soap, an ounce and a half of opium, three ounces of camphor, six fluid drams of oil of rosemary, and two pints of alcohol. Macerate the soap and opium in the spirit for three days; then filter, and add the oil and camphor, and shake briskly.

This is a useful anodyne and rubefacient liniment for bruises, sprains and pains of a rheumatic and gouty nature.

Liniment of Spanish Flies. — Take an ounce of powdered Spanish flies, and half a pint of oil of turpentine. Mix, and apply gentle heat to them, in a covered vessel, for three hours. Then strain.

Employed with advantage externally in the sinking stage of typhoid fevers. If so powerful as to cause blistering, it may be weakened by adding flax-seed or olive oil.

Liniment of Turpentine. — Take half a pint of oil of turpentine, and a pound of resin cerate. Melt the cerate, and add the oil to it, mixing them well.

This is a valuable remedy for scalds and burns, and should be applied soon after the accident, and be discontinued when the inflammation excited by the fire is removed. The burned or scalded surface should be covered with lint wet with the liniment.

Opodeldoc. — Take three ounces of white bar soap, sliced, an ounce of camphor, a fluid dram each of oil of rosemary and oil of origanum, and a pint of alcohol. Digest the soap in the alcohol by means of a gentle heat until it is dissolved; then add the camphor and oils, and when they are dissolved pour the whole into broad-mouthed vials.

This is the *camphorated soap liniment*, and is used as an anodyne application to sprains, bruises, painful tumors, etc.

Medicated Waters.

THOSE preparations consisting of water impregnated with some medicinal substance are called medicated waters. They are prepared from volatile oils by triturating in a mortar a dram of the oil, more or less, with a small quantity of carbonate of magnesia, and then very gradually pouring on one quart of water, while the trituration is continued. At last the preparation is filtered through paper. The quantity of oil, magnesia, and water, used for each preparation, is as follows:

Oil of bitter almonds, sixteen minims; carbonate of magnesia, a dram; water, one quart.

Oil of cinnamon, half a fluid dram; carbonate of magnesia, a dram; water, one quart.

Twenty minims of oil of roses, a dram of carbonate of magnesia, and one quart of water.

Oil of fennel, half a fluid dram; carbonate of magnesia, a dram; water, a quart.

Peppermint-water, spearmint-water, and pennyroyal-water, are all prepared from the same quantities of their several oils as cinnamon-water.

The dose of these waters is half a fluid ounce to two fluid ounces, except the bitter almond water, which is one or two fluid drams.

Camphor Water — Take two drams of camphor, forty minims of alcohol, four drams of carbonate of magnesia, and one quart of water. Rub the camphor first with the alcohol, afterwards with the carbonate of magnesia, and lastly with the water, gradually added. Then filter through paper.

Medicated Wines.

WINES are used in making certain preparations, because the alcohol they contain will extract from plants, etc., some medicinal properties which water will not, and at the same time is less stimulating than the tinctures, etc., made from alcoholic spirits.

Compound Wine of Comfrey (*Restorative Wine Bitters*). — Take one ounce each, bruised, of comfrey, Solomon's seal, and spikenard; and half an ounce each, bruised, of chamomile flowers, colombo, and gentian. Cover these with boiling water, and let them stand twenty-four hours in a covered vessel. Then add two quarts of sherry wine. Macerate fourteen days, express and strain.

Valuable in leucorrhœa and other female complaints. Dose, from half a fluid ounce to two fluid ounces, three or four times a day.

Compound Wine of Golden Seal. — Take one dram each, bruised, of golden seal root, tulip-tree bark, and bitter-root, half a dram of pulverized cayenne, and two quarts of sherry wine. Macerate for fourteen days, with occasional shaking; then express and strain.

This is a pleasant bitter tonic in dyspepsia, etc. Dose, from half a fluid ounce to two fluid ounces, three times a day.

Wine of Ipecacuanha. — Take two ounces of bruised ipecac, and one quart of sherry wine. Macerate fourteen days, with occasional shaking. Then express, and filter through paper.

This is a valuable emetic preparation, — especially for children. Dose, as an emetic, for an adult, one fluid ounce; as an expectorant, from ten to thirty minims; for a child two years old, as an emetic, one fluid dram, repeated every fifteen minutes till it operates.

Mixtures.

THESE are preparations in which medicinal substances which cannot be dissolved in water are suspended in it by means of some viscid matter, like sugar or gum-arabic. Their object is to conceal the taste, prevent the sickening effect, and make it more easy to take disagreeable medicines. To make a perfect mixture requires skill. Generally, the medicines to be suspended should be triturated in a mortar with the sugar, gum-arabic, etc., before the water is added.

Almond Mixture. — Take half an ounce of sweet almonds, half a dram of powdered gum-arabic, two drams of sugar, and eight fluid ounces of water. Soak the almonds in the water, and, having removed their external coat, beat them with the gum-arabic and sugar in a mortar, till they are thoroughly mixed; then rub the mixture, gradually adding the water, and lastly, strain.

This is an agreeable, nutritive demulcent, in bronchial, dysenteric, and urinary affections. It must be used freely, the dose being from two to five fluid ounces.

Chalk Mixture. — Take half an ounce of prepared chalk, two drams each of refined sugar and powdered gum-arabic, and four fluid ounces each of cinnamon-water and water. Rub them together till they are thoroughly mixed.

This is much used in looseness of the bowels, accompanied with acidity, particularly among children. If an increase of its astringency be required, add laudanum, or kino, or catechu.

Compound Mixture of Iron. — Take a dram of myrrh, twenty-five grains of carbonate of potassa, one scruple of powdered sulphate of iron, half a fluid ounce of spirit of lavender, one dram of refined sugar, and seven and a half fluid ounces of rose-water. Rub the myrrh in a mortar, gradually adding the rose-water, then mix with these the spirit of lavender, sugar, and carbonate of potassa, and lastly, the sulphate of iron. Pour the whole into a glass bottle, and keep it well stopped.

This is considerably used in chlorosis, and other affections requiring the use of iron.

Brandy Mixture. — Take four fluid ounces each of brandy and cinnamon water, the yolks of two eggs, half an ounce of refined sugar, and three drops of oil of cinnamon. Mix them.

A useful stimulant and nutritive draught, to be used in the sinking stage of low forms of fever.

Extract of Rhubarb and Potassa (*Neutralizing Extract*). — Take two pounds of the best rhubarb, one pound each of cinnamon and golden seal. Grind or coarsely bruise the articles, and mix them; macerate them for two days in one gallon of the best fourth proof brandy. Then express the tincture with strong pressure, and add to it one fluid dram of oil of peppermint, previously dissolved in a little alcohol. Break up the compressed residue from the press, and place it in a percolator, and gradually run warm water through it until the strength is exhausted. Evaporate this solution to four pints, and while the liquor is still hot, dissolve in it two pounds of bicarbonate of potassa, and three pounds of refined sugar. Continue the evaporation, if necessary, until, when added to the tincture first obtained, it will make a gallon and a half, then mix the two solutions together.

This is a useful preparation for diarrhœa, dysentery, cholera morbus, summer complaints of children, acidity of the stomach, heartburn, etc. Dose, one fluid dram.

Metauer's Aperient. — Take one ounce and a half of pulverized aloes, four ounces of bicarbonate of soda, two fluid ounces of compound spirits of lavender and two quarts of water. Place the whole in a jar or jug, and let them stand fourteen days, shaking well once a day. Then pour off from the dregs. It improves by age.

This preparation is one of the best-known aperients for costiveness, — particularly when connected with bilious dyspepsia. For that class of bilious persons who overeat, and have acid stomachs, it has great value. In bilious cases, the nitro-muriatic acid, taken before meals (the aperient *after* meals) may be usefully associated with it. In the constipation of hysteria and hypochondriasis, the fluid extract of valerian may be added to it. Dose, from two drams to an ounce.

Saline Mixture (*White Liquid Physic*). — Take half a pound of sulphate of soda, and one and a half pints of water. Mix, and dissolve the soda; then add two fluid ounces of nitro-muriatic acid, and one dram and eight grains of powdered alum.

Used to allay nausea and vomiting, and as a cooling purgative; also for colic, diseases of the liver, diarrhœa, dysentery, intermittent fevers, etc.

This is one of the remedies of the Eclectic school of physicians, and is held by them in high esteem. Dose, a tablespoonful in a gill of water, to be repeated every hour or two until it causes one or two evacuations from the bowels.

Ointments.

OINTMENTS are composed of fatty substances, about the consistence of butter, impregnated with medicine. All gritty matter should be excluded from them. To prevent the rancidity to which they are liable, a little glycerin is now frequently added.

Ointment of Acetate of Lead. — Take two ounces of white wax and four ounces of lard; melt them together, and add two and a half drams of finely-powdered acetate of lead; stir constantly till cold. This is useful for burns, scalds, ulcers and excoriations.

Ointment of Bayberry. — Take half a pound each of tallow, white turpentine and bayberry, and four ounces of olive-oil; melt together and strain.

Good for scrofulous and indolent ulcers.

Ointment of Belladonna. — Take a dram of extract of belladonna and an ounce of lard; mix them.

A useful anodyne application for painful tumors, neuralgia, etc.

Ointment of Creosote. — Take half a fluid dram of creosote and an ounce of lard; mix them.

A useful application for syphilitic, scrofulous and cancerous ulcers.

Compound Ointment of Galls. — Take six drams of finely-powdered galls, six ounces of lard, and a dram and a half of pulverized opium; rub them together.

A valuable preparation in irritable piles.

Ointment of Red Iodide of Mercury. — Take one dram of red iodide of mercury, and seven drams of ointment of white wax; incorporate them thoroughly together by trituration in a mortar.

Used as a dressing for indolent scrofulous ulcers.

Ointment of Nitrate of Mercury. — Take one ounce of mercury, eleven fluid ounces of nitric acid, nine fluid ounces of fresh neats-foot oil, three ounces of lard. Dissolve the mercury in the acid, then heat the oil and lard together in an earthen vessel to 200° F.; then add the mercurial solution, and stir with a wooden spatula, constantly, as long as effervescence continues, and afterward occasionally till the ointment stiffens.

Milder Ointment of Nitrate of Mercury. — Take an ounce of ointment of nitrate of mercury, and seven ounces of lard; rub them together.

The first of the above two preparations is the *citrine ointment*, and is much and advantageously employed as an external application in porrigo, impetigo, psoriasis and pityriasis. It is nearly a specific for inflammation of the eyelids connected with the formation of scaly matter about the lashes. The second of these two preparations is merely a dilution of the first.

Ointment of Oxide of Zinc. — Take half an ounce of oxide of zinc and three ounces of lard; rub them together.

This is a mild astringent application in chronic ophthalmia, eruptions of the skin, sore nipples, and other excoriations.

Ointment of Poison Hemlock. — Take one dram of extract of poison hemlock and one ounce of lard; rub them together.

An anodyne application for painful swellings, ulcers and piles.

Ointment of Poke. — Take a dram of the extract of poke and one ounce of lard; mix them.

For malignant ulcers, scaldhead, itch, etc.

Ointment of Stramonium. — Take one dram of the extract of stramonium leaves, and one ounce of lard; rub the extract with a little water till it is uniformly soft, and then with the lard.

Used as an external application in irritable ulcers, painful piles and skin eruptions.

Simple Ointment. — Take a pound of white wax, and four pounds of lard; melt them together with a gentle heat, and stir constantly till cold.

Ointment of Rose-Water. — Take a fluid ounce of rose-water, two fluid ounces of oil of almonds, half an ounce of spermaceti, one dram of white wax; melt together, by means of a water-bath, the oil, spermaceti, and wax; then add the rose-water, and stir the mixture constantly till cold.

This is the well-known preparation called *cold cream*, and is used with much advantage for chapped lips and hands, excoriations, etc.

Spermaceti Ointment. — Take five ounces of spermaceti, fourteen of white wax, and a pint of olive-oil; melt them together over a slow fire and stir constantly till cold.

A mild dressing for blisters, wounds and excoriated surfaces.

Tar Ointment. — Take a pound each of tar and suet; melt the suet with a gentle heat, and add the tar to it; then stir constantly till they are cold.

A useful stimulating application to various scaly and scabby eruptions, particularly leprosy and scaldhead.

Ointment of White Hellebore. — Take one ounce of powdered white hellebore root, four ounces of lard, and twelve drops of oil of lemons; rub them thoroughly together.

A useful ointment for the cure of itch.

Ointment of Wild Indigo. — Take one pound of powdered wild indigo root, moisten it thoroughly with alcohol and let it stand twenty-four hours; then put it in a percolator and add alcohol as long as the liquid which passes contains the taste of the root. Distil the alcohol from this filtered tincture until half a gallon of tincture is obtained. Melt one pound of fresh butter, without salt, add the above tincture, and carefully evaporate the rest of the alcohol; stir constantly till cold, after the alcohol has nearly passed off.

This is one of the preparations of the Eclectics, and is a cleansing, detergent, antiseptic and discutient ointment, useful in scrofulous, erysipelatous and malignant ulcers, eruptions of the skin, etc.

Pile Ointment. — Take three handfuls each of witch-hazel bark, white-oak bark and sweet-appletree bark; bruise or grind them, and add to them three pints of water; boil down to one pint and strain; add to this liquid half a pound of lard, and simmer till the water all disappears, stirring continually both before and after removing from the fire till it cools.

This forms a brick-colored anodyne, astringent ointment, admirably adapted to the cure of pile-tumors.

Compound Lead Ointment. — Take two and a half pounds of olive-oil, four ounces each of beeswax and unsalted butter, and half a pound of white turpentine; melt them together, strain, and then heat to nearly the boiling point; then gradually add one pound of red lead, stirring constantly till the mixture becomes black or brown; then remove from the fire, and when it is partly cool, add to it a mixture of twelve ounces of honey and half a pound of powdered camphor.

This is a very healing ointment, and is much used for ulcers, burns, wounds, and skin-diseases.

Compound Sulphur Ointment. — Take one ounce of sulphur, one dram each of ammoniated mercury and benzoic acid, one fluid dram each of sulphuric acid and oil of bergamot, two drams of nitrate of potassa and half a pound of lard. First melt the lard with a gentle heat, then add the other ingredients, stirring constantly till they are cold.

A sovereign remedy for itch.

Pills.

PILLS are small masses of medicinal substances in globular shape, and of a size convenient for swallowing. Each pill generally weighs from four to five grains. Those medicines which cannot be dissolved in water, and are particularly unpleasant to the taste, are usually given in the form of pill. Sugar, or gelatine coated, as now very extensively used for every important medicine, and in a great variety of combinations, they are a very popular form of taking medicine. Physicians cannot do better than to use the pills when made by a reliable firm.

The method of making pills is as follows: If the substance to be worked into pills be a solid extract, add a few drops of water to it, and rub it to the right consistence; if it be a resin, add to it a few drops of alcohol; if it be a soft or liquid substance, rub up with it some inert substance, or crumb of bread, or wheat flour, or starch, or pulverized gum-arabic; if it be a powder, mix it with some soft substance, as confection, or syrup, molasses, honey, or mucilage of gum-arabic. The materials must be well mixed and rubbed into a uniform mass, which should be rolled with a spatula or knife into a cylinder of just the same size throughout. This is to be divided equally into the number of pills required, each of which is rolled into a spherical form between the thumb and finger, or upon the palm.

So many valuable pills are prescribed among the "Recipes," that it is not necessary here to add to their number.

Plasters.

PLASTERS are composed of wax, resins, gums, fats and oils, and sometimes medicinal substances, and are spread upon linen, muslin, or leather. When cold they are hard; but when brought to the warmth of the human body, they so far soften as to adhere firmly to the skin, but do not "run" so as to spread outward and soil the under-clothes. They are intended generally to excite and irritate the skin; sometimes as mechanical supporters, and sometimes to affect the system by having their medicinal matters absorbed.

Belladonna Plaster.— Take three ounces of resin plaster, and an ounce and a half of extract of belladonna, add the extract to the plaster previously melted by a gentle heat, and mix.

A useful anodyne application in neuralgia, rheumatic pains, and dysmenorrhœa.

Compound Capsicum Plaster. — Melt together half a pound of resin and two ounces of beeswax; to this add one pint of spirit in which two ounces of powdered cayenne, enclosed loosely in a linen bag, has been digested one hour by a gentle heat; evaporate the spirit by a moderate heat, and add one ounce of powdered camphor and one fluid dram and a half of oil of sassafras; stir constantly till cold.

This may be used whenever a stimulating plaster is required.

Compound Galbanum Plaster. — Take two ounces of galbanum, three ounces of burgundy pitch, half an ounce of resin, half an ounce of yellow wax, and four ounces of lead plaster; melt them all together over a gentle fire.

This is a valuable strengthening plaster, and may be used for weakness of various parts, as well as for scrofulous enlargement of glands and joints.

Compound Lead Plaster. — Take one pound of lead plaster; melt it by a moderate heat, and then add two fluid ounces each of linseed oil and tincture of opium, six fluid ounces of oil of turpentine, and two-thirds of a pound of oil of origanum; stir together till cold.

Used for burns, scalds, chilblains, etc.

Compound Resin Plaster. — Take three pounds of resin, four ounces each of beeswax and hemlock gum; melt the articles together, then remove from the fire, and, when nearly cold, add gradually one fluid ounce each of oil of hemlock, oil of sassafras, and olive oil, with half an ounce of camphor, dissolved in them, and half a fluid ounce of oil of turpentine. Pour the whole into cold water, and work in the hands till cold, forming it into rolls.

This is an excellent strengthening plaster, useful for rheumatism, enlarged joints, glands, and wherever a weakened part needs gentle stimulation and support.

Spiced Plaster. — Take one ounce each of powdered ginger, cloves, cinnamon and black pepper; one dram of pulverized cayenne; half a fluid ounce of tincture of ginger, and a sufficient quantity of honey. Mix the powders, and then add the tincture and honey to form a stiff poultice.

This is applied with great advantage over the stomach in cases of nausea and vomiting.

Compound Tar Plaster. — Boil three pounds of tar half an hour, then add one pound and a half of burgundy pitch, one pound of white gum turpentine (after having melted them together and strained). Stir together, then remove from the fire and add ten ounces each of finely-powdered mandrake-root, bloodroot, poke-root and Indian turnip; mix thoroughly together.

This is an irritant, rubefacient, suppurative plaster, and is considerably used by the Eclectics to produce counter-irritation and revulsion in neuralgia, rheumatism and other painful affections, as well as in chronic inflammation of internal organs. To be spread thinly on soft leather, and renewed daily on the same leather. Four days are required to produce suppuration. If it produce great pain or inflammation, remove it, and apply mutton-tallow or elm-poultice.

Lead Plaster. — Take one pound and a quarter of very finely powdered semivitrified oxide of lead, one quart of olive oil and half a pint of water. Boil together over a gentle fire, stirring constantly till the oil and litharge unite and form a plaster. If the water nearly all evaporates before the process is completed, add a little boiling water.

A useful plaster for ulcers, burns, excoriated surfaces, etc.

Red Oxide of Lead Plaster. — Melt together one quart of olive-oil and one ounce each of beeswax and resin; heat to the boiling point, and then add gradually three-quarters of a pound of powdered red-lead. Stir constantly, and when the oil has taken up the lead, the mixture will be brown or shining black; then remove from the fire, and when nearly cold add four scruples of powdered camphor, and stir together. It should not be removed from the fire until it has acquired a proper consistence for spreading, which may be easily ascertained by allowing a portion of it to cool on a knife.

This is a valuable plaster for scrofulous and syphilitic ulcers, also for burns, scalds, and several skin-diseases.

Poultices. — Cataplasms.

Bread-and-Water Poultice. — Put the needed quantity of boiling water in a basin; throw in crumbled white bread, or cracker, and cover with a plate. When the bread or cracker has soaked up all it will, drain off the remaining water. Spread one-third of an inch thick, and apply.

Flaxseed Poultice. — Put boiling water in a basin, and stir in flaxseed meal to make a thick paste. Spread on linen and apply.

Yeast Poultice. — Mix half a pint of yeast with one pound of flaxseed-meal. Stir carefully while heating.

Carrot Poultice. — Boil the proper quantity of carrots till they are quite soft. Strain off the water, mash them to a pulp, and add a little lard or sweet oil to prevent them from getting hard, then spread. A good application for malignant and offensive sores.

Oatmeal Poultice. — Place hot water in a basin, and stir in oatmeal slowly, while it boils, till the poultice is of the right thickness that is, till it will not run on the rag on which it is spread.

Indian-Meal Poultice.— Made the same as oatmeal poultice.

Arrow-Root Poultice.— Mix two or more tablespoonfuls of arrow-root with a little cold water, in a basin, till it is all united with the water. Then add boiling water, and stir till the whole becomes a thick paste.

Slippery Elm Poultice.— Stir ground slippery-elm bark into hot water, and let it swell. This is a very soothing poultice for irritable sores.

Onion Poultice.— Made in the same way as the carrot poultice. This is quite stimulating, and induces indolent sores to mature more freely. It is excellent for slow boils.

Charcoal Poultice.— Take either the bread-and-milk, or the Indian-meal poultice, and stir into it one-quarter its bulk of finely pulverized charcoal. Excellent for thoroughly cleansing a foul sore or ulcer.

Anodyne Poultice.— Take half an ounce of the extract either of foxglove, or henbane, or stramonium, or conium, or belladonna, and mix it with half a pint of tepid water. Then stir in as much flax-seed meal as will make a poultice of the right thickness. Always be careful not to apply this poultice where there is much skin off, lest the extract used be so much absorbed as to produce poisonous effects. These poultices allay the pain of cancerous and other sores.

Lobelia Poultice.— Powdered lobelia and ground slippery-elm bark, each, one ounce. Stir these into hot weak lye, to make a poultice. For wounds, fistula, whitlow, boils, erysipelas and stings of insects.

Poke-Root Poultice.— Roast a sufficient quantity of fresh poke-root in hot ashes. When it is quite soft, pound it, and make a poultice. To be applied to tumors to scatter them, or hasten their suppuration. To be removed every four hours.

Mustard Poultice.— Stir up a tablespoonful of ground mustard with a little water, to the consistence of paste. Spread upon linen or brown paper, and cover with thin muslin, that the mustard may not stick to the skin when the poultice is removed. They can now be bought all prepared, either on paper or cloth, of several different degrees of strength, and are much better than the home-made.

Powders.

A SINGLE substance used as a powder is called a *simple powder*; two or more united, a *compound powder*. Under the above head, I shall describe only compound powders. In preparing compound powders, the substances, if of different degrees of hardness, should

generally be pulverized separately. Many powders require to be excluded from the light, which may be done by covering the bottles in which they are kept with black varnish.

Aromatic Powder. — Take two ounces each of cinnamon and ginger, and an ounce each of cardamom deprived of the capsules, and grated nutmeg. Rub them together into a very fine powder, and keep in well-stopped bottles.

The powder is stimulant and carminative, and in cases of weakened digestion, may be given in ten to thirty-grain doses.

Compound Powder of Aloes and Canella. — Take a pound of aloes and three ounces of canella. Rub them separately to a fine powder, and mix them.

This is the preparation known as *hiera picra*, or simply *picra*. It may be used for amenorrhœa, or generally as a bitter to correct costiveness, and improve the appetite.

Compound Powder of Catechu. — Take two ounces each of catechu and kino, and half an ounce each of cinnamon and nutmeg. Reduce all to a fine powder, mix and pass them through a fine sieve.

For chronic diarrhœa, dysentery, etc. Dose, from fifteen to thirty grains.

Compound Powder of Chalk. — Take half a pound of prepared chalk, four ounces of cinnamon, three ounces each of tormentil and gum-arabic, and half an ounce of long pepper. Rub them separately into a very fine powder, and mix.

This powder is warm, stimulant, astringent and antacid, and is well fitted for diarrhœa not connected with inflammation.

Compound Powder of Chalk with Opium. — Take six ounces and a half of compound powder of chalk, and four scruples of powdered opium. Mix them.

The opium in this preparation increases the efficacy of the compound powder of chalk in diarrhœa. Dose for an adult, ten to fifteen grains, and repeated after each discharge.

Compound Powder of Golden Seal. — Take two drams each of powdered golden seal, blue cohosh and helonias, and mix them.

Useful in dyspepsia, chronic inflammation of the mucous membrane of the stomach, etc. Dose, half a teaspoonful to a teaspoonful, three or four times a day.

Compound Powder of Hydrastin. — Take half a dram each, in powder, of hydrastin, leptandrin, rhubarb and myricin. Mix thoroughly, and divide into thirty-two powders.

This is tonic and laxative, and is useful in dyspepsia, jaundice, chronic inflammation of the bowels, and during recovery from exhausting complaints. One powder may be taken often enough to produce one movement of the bowels a day.

Inhaling Powder. — Take one dram of crystals of nitrate of silver, and two and a half drams of lycopodium. Work the lycopodium into a very stiff paste, with a little warm water, in which the nitrate is dissolved. Spread this thin in a shallow dish, cover it so as to shut out the light, and set it where it will dry; when thoroughly dry, pulverize.

I have used this powder with great advantage in many cases of bronchitis, by directing three to four grains of it to be inhaled once a day, in an instrument constructed for that purpose. This is the only really valuable *catarrh snuff* ever used. A pinch of it taken once a day (never oftener) for nasal catarrh, will often do excellent service.

Compound Powder of Ipecacuanha. — Take a dram each of powdered ipecacuanha and opium, and one ounce of sulphate of potassa. Rub them together into a fine powder.

This is the well known *Dover's powder*. It is an admirable anodyne and diaphoretic, and is much used in inflammatory complaints, particularly rheumatism and pneumonia, complicated with low typhoid symptoms. Dose, from five to ten grains.

Compound Powder of Jalap. — Take half an ounce of pulverized jalap and senna, one ounce of pulverized bitartrate of potassa, half a dram of pulverized ginger, and ten grains of pulverized cayenne. Mix thoroughly.

This is a valuable purgative medicine, and may be used in most cases where a simple cathartic is required. Dose, half a teaspoonful to a tablespoonful.

Compound Powder of Kino. — Take fifteen drams of kino, half an ounce of cinnamon, and a dram of dried opium. Rub them separately to a very fine powder, and mix them.

This is anodyne and astringent, and is useful in diarrhœa, etc.

Compound Powder of Rhubarb. — Take four ounces of powdered rhubarb, one pound of magnesia, and two ounces of finely powdered ginger. Mix thoroughly, and preserve in well stopped bottles.

An excellent laxative and antacid, and well adapted to the bowel-complaints of children.

Compound Powder of Rhubarb and Potassa (*Neutralizing Powder*). — Take half an ounce each of powdered rhubarb, bicarbonate of potassa and peppermint leaves. Mix thoroughly.

Valuable in diarrhœa, cholera morbus, dysentery, summer complaint of children, sour stomach, heartburn, etc.

Worm Powder. — Take one ounce each of powdered white Indian-hemp root (*Asclepias incarnata*), mandrake, pink-root, and bitter-root; two ounces of powdered balmony, and four scruples of powdered aloes. Mix thoroughly.

A very good remedy for all kinds of worms. A teaspoonful of the powder may be mixed with a gill of molasses, and a teaspoonful of this given to a child every hour or two till it operates. After this, give a teaspoonful three times a day, for a few days.

Syrups.

A STRONG solution of sugar and water is a *simple syrup*. When the water is first charged with some medicinal substance, and sugar is added to this, we have a *medicated syrup*. Refined sugar should always be preferred in preparing medicated syrups.

Simple Syrup. — Take two and a half pounds of refined sugar, and a pint of water; dissolve the sugar in the water by heat, remove any scum that may arise, and strain while hot.

Syrup of Almonds. — Take a pound of sweet almonds, four ounces of bitter almonds, three pints of water, and six pounds of refined sugar. Blanch the almonds, then rub them in a mortar to very fine paste, and add, during the trituration, three fluid ounces of the water, and one pound of the sugar. Mix the paste thoroughly with the remainder of the water. Strain with strong expression, add the remainder of the sugar to the strained liquor, and dissolve by a gentle heat. Strain through fine linen, and after it is cool, put it into bottles, thoroughly stopped, and keep in a cool place.

This is demulcent, nutritive and sedative, and is sometimes added to cough mixtures, etc.

Syrup of Citric Acid. — Take two drams of powdered citric acid, four minims of oil of lemons, and two pints of syrup. With one fluid ounce of the syrup, rub the citric acid and oil of lemons, then add the remainder of the syrup, and dissolve by a gentle heat.

This is much employed as an agreeable and cooling addition to drinks, especially to carbonic-acid water. Tartaric acid, being cheaper than citric acid, is often substituted for it, and the preparation thus made is much sold under the name of *lemon syrup*.

Syrup of Garlic. — Take six ounces of fresh garlic, sliced and bruised, one pint of diluted acetic acid, and two pounds of refined sugar. Macerate the garlic in ten fluid ounces of the diluted acetic acid in a glass vessel, four days, and express the liquor. Then mix the rest with what remains of the acid, and again express, till sufficient has passed to make the whole when filtered measure a pint. Then pour the filtered liquor on the sugar in a bottle, and shake till it is dissolved.

Excellent in the bronchial affections of children. Dose, a teaspoonful, for a child a year old.

Syrup of Ginger. — Add two fluid ounces of tincture of ginger to a quart of simple syrup; evaporate the alcohol by a gentle heat.

This is carminative and stimulant, and gives tone to the debilitated stomach, removing wind, etc. It is added to other medicines to improve their flavor.

Compound Syrup of Hypophosphites.— Take 256 grains of hypophosphite of lime, 192 grains of hypophosphite of soda, 128 grains of hypophosphite of potassa, 96 grains of recently precipitated hypophosphite of iron, 240 grains of hypophosphorous acid solution, 12 ounces of white sugar, half an ounce of extract of vanilla, and a sufficient quantity of water. Dissolve the salts of lime, soda and potassa, in six ounces of water; put the iron salt into a mortar and gradually add solution of hypophosphorous acid till it is dissolved; to this add the solution of the other salts, after it has been rendered slightly acidulous with the same acid, and then water, till the whole measures nine fluid ounces. Dissolve this in sugar, with heat, and flavor with the vanilla. Without flavoring, this syrup is not unpleasant, being slightly saline, and not at all ferruginous. Any other flavoring may be used, as orange-peel, orange-flower or ginger. It is also suggested to physicians that glycerine may be used, wholly or partially, in place of sugar, when indicated, six ounces and a half of glycerine being substituted for twelve ounces of sugar. Dose, a teaspoonful, three times a day before meals.

Syrup of Ipecacuanha.— Take one ounce of ipecacuanha, in coarse powder, one pint of diluted alcohol, two pounds and a half of sugar, and one pint of water. Macerate the ipecacuanha in the alcohol, fourteen days, and filter; evaporate the filtered liquor to six fluid ounces, filter again, and add water to make the liquor measure a pint; then add the sugar, and proceed as directed for syrup.

This is chiefly used in complaints of children. Dose, as an emetic, for an adult, two fluid ounces; for a child a year or two old, one or two fluid drams. As an expectorant, for an adult, two fluid drams; for a child, five to twenty minims.

Syrup of Lemons.— Take a pint of strained lemon-juice, two pounds and a half of refined sugar, and two and a half fluid ounces of rectified spirit; boil the juice ten minutes, and strain; then add the sugar, and dissolve. After the syrup has cooled, mix the spirit with it.

A cooling and grateful addition to drinks in fevers, and serves to cover the taste of salts and other purgatives.

Aromatic Syrup of Rhubarb.— Take two ounces and a half of bruised rhubarb, half an ounce each of bruised cloves and cinnamon, two drams of bruised nutmeg, two pints of diluted alcohol, and six pints of syrup. Macerate the rhubarb and aromatics in the alcohol for fourteen days, and strain; then, by a gentle heat, evaporate the liquor to a pint, and, while hot, mix it with the syrup previously heated.

This is a warm cordial laxative, admirably fitted for the bowel complaints of infants. Dose, a fluid dram, repeated every two hours till it operates.

Syrup of Seneka. — Take four ounces of fluid extract of seneka, and one pint of water; mix, and dissolve in the liquid one pound of refined sugar, and proceed as directed for syrup.

This is a stimulating expectorant, used in colds, coughs, etc., after inflammatory symptoms have subsided. Dose, for an adult, one or two teaspoonfuls, as often as necessary.

Syrup of Squill. — To one pint of vinegar of squill, add two pounds of refined sugar, and proceed as directed for syrup.

It is a useful expectorant for coughs and bronchial affections of infants and children. Dose, half a dram to a dram.

Syrup of Tolu. — Take two fluid ounces of tincture of tolu, and one pint of simple syrup; mix, and gently heat the mixture to evaporate the alcohol.

This is chiefly used to flavor other preparations.

Syrup of Wild-Cherry Bark. — Place two pounds and a half of coarsely powdered wild-cherry bark in a percolator, and pass through it one gallon of water. Strain this and dissolve in it by heat sixteen pounds of refined sugar.

This makes an elegant tonic and sedative preparation, and is mixed with various other articles in prescribing for dyspepsia, consumption, etc.

Compound Syrup of Partridge Berry. — Take half a pound of partridge berry, and two ounces each of helonias, blue cohosh, and high cranberry bark; add to them one quart of brandy, and macerate four days. Press out the brandy; and place the herbs in three quarts of boiling water, and boil down to two and a half pints. Strain, add one pound of sugar, and evaporate to two and a half pints. Remove from the fire, and when nearly cold, add the brandy previously pressed out.

This is considerably used by the Eclectic physicians, under the name of *mother's cordial*, and may be usefully employed by all physicians in suppression of the menses, painful menstruation, profuse menstruation and habitual abortions. Dose, from one to two ounces, two or three times a day.

Compound Syrup of Phosphates (*Chemical Food*). — Take ten drams of protosulphate of iron, twelve drams of phosphate of soda, twelve drams of phosphate of lime, twenty drams of phosphoric acid (glacial), two scruples of carbonate of soda, one dram of carbonate of potassa, sufficient quantity of muriatic acid, sufficient quantity of water of ammonia, two drams of powdered cochineal, sufficient water to make twenty fluid ounces, three pounds of sugar,

and fifteen drops of oil of orange. Dissolve the sulphate of iron in two fluid ounces of boiling water, and the phosphate of soda in four fluid ounces of boiling water. Mix the solutions, and wash the precipitated phosphate of iron till the washings are tasteless.

Dissolve the phosphate of lime in four fluid ounces of boiling water, with sufficient muriatic acid to make a clear solution, precipitate it with water of ammonia, and wash the precipitate.

To the freshly precipitated phosphates, as thus prepared, add the phosphoric acid, previously dissolved in the water. When clear, add the carbonates of soda and potassa, and afterwards sufficient muriatic acid to dissolve the precipitate.

Now add the cochineal mixed with the sugar, apply heat, and when the syrup is formed, strain and flavor it.

This is an elegant syrup, agreeable both to the eye and taste, and has been extensively sold and used as a nutritive tonic, in chronic debility, in cases of broken down constitution, wasting of the flesh, etc.

Compound Syrup of Rhubarb and Potassa (*Neutralizing Cordial*). — Take half a pound each of powdered rhubarb and bicarbonate potassa, and four ounces each of cinnamon and golden seal; macerate for four days in one gallon of best fourth proof brandy. Express the tincture with strong pressure, and add to it two fluid drams of oil of peppermint, previously dissolved in a little alcohol. Break up the cake from the press, place it in a percolator, and gradually pass through it warm water till the strength is exhausted. Evaporate this solution to four quarts, and while the liquor is still hot, dissolve in it six pounds of refined sugar. Continue the evaporation, if necessary, till the addition of the tincture first obtained will make three gallons. Then add the tincture.

A valuable antacid and laxative in diarrhœa, dysentery, cholera morbus, and summer complaint of children. Dose, for an adult, a tablespoonful, to be taken as circumstances require.

Compound Syrup of Sarsaparilla. — Take a pound each of sarsaparilla, yellow parilla, and pipsissewa; an ounce and a half of guaiacum; one ounce each of red roses, senna, and liquorice root; and three minims each of oil of sassafras, anise, and partridge berry; diluted alcohol, five pints, and four pounds of refined sugar. Grind and mix the sarsaparilla, yellow parilla, pipsissewa, guaiacum, roses, senna, and liquorice, and add to them the alcohol. Let the whole stand fourteen days, then express and filter. Evaporate by a water-bath to one quart, and add the sugar. Lastly, rub the oils in a mortar with a little of the syrup, and thoroughly mix with the remainder.

This is a valuable alterative syrup, and is used for syphilis, scrofula, diseases of the skin, etc. It is much improved by adding half an ounce of the iodide of potassium to each pint of the syrup. Dose, a tablespoonful.

Compound Aromatic Syrup of Senna.—Take four ounces of senna, one ounce and a half of jalap root, half an ounce of rhubarb, one dram of cinnamon, one dram of cloves, and half a dram of nutmeg. Reduce these articles to a coarse powder; add one quart of diluted alcohol. Let the whole stand two days and percolate. Filter, dissolve in it one pound of refined sugar, and add one dram of oil of lemons.

An excellent cordial physic.

Compound Syrup of Stillingia.—Take a pound each of queen's root and turkey corn; half a pound each of pipsissewa leaves and elder flowers; and four ounces each of prickly-ash berries and cardamom seeds. Grind all the articles, mix, and place them in a jar, and moisten them well with alcohol. Let them stand two days; then place them in a percolator, and gradually add hot water till two pints are obtained, which must be strained and set aside. Then continue the percolation so long as there is a sensible taste of the spirit. Reserve this also. Then continue the percolation till what is obtained is almost tasteless. Boil down this last till the addition of the two reserved tinctures will make two gallons of the whole. Now add twelve pounds of refined sugar, and make a syrup.

This is one of the Eclectic medicines; and is quite an effective alterative for syphilis, scrofula, etc. Improved by adding iodide of potassium. Dose, from a teaspoonful to a tablespoonful.

Compound Syrup of Yellow Dock.—Take two pounds of yellow-dock root, one pound of the bark of the root of false bittersweet, and half a pound each of American ivy and figwort. Make a syrup according to the directions for compound syrup of stillingia, using sixteen pounds of sugar, and making two gallons of syrup.

A valuable preparation for scrofula. Improved by iodide of potassium. Dose, a tablespoonful, three or four times a day.

Tinctures.

AN *ethereal* tincture is one which is made with ether as the solvent instead of alcohol, and an *ammoniated* tincture, one made with water of ammonia as the solvent.

Simple tinctures, in which only one medicinal article is used, are made thus:

Tincture of Aconite.—Take eight ounces of powdered aconite-root, and one pint of alcohol. Mix, and let them stand for two weeks, frequently stirring. Then express, and filter through paper.

Given in fevers and inflammatory diseases. Dose, three drops every hour or two in a little water.

In the above manner all simple tinctures are made. Some medicines require *alcohol* to extract their active principle; some only *diluted alcohol*.

One Ounce to the Pint of Alcohol. — In preparing simple tinctures from the following articles, *alcohol* is used, and *one* ounce only of the medicine is employed to the pint, namely :

Castor, Saffron, Leptandria.

One Ounce to the Pint of Diluted Alcohol. — In making tinctures from the following articles, one ounce is used to the pint of diluted alcohol :

Iodine, Quassia.

Two Ounces to a Pint of Alcohol :

Assafoetida, Camphor, Oil of Peppermint, Oil of Spearmint, Benzoin, Colchicum seeds, Lupulin.

Two Ounces to a Pint of Diluted Alcohol :

Cardamom, Cotton-Bark, Cochineal, Colombo, Colchicum, Ergot, Galls, Hemlock, Cubebs, Foxglove, Black Hellebore, Henbane, Lactucarium, Lobelia, Poke, Shrubby Trefoil, Bloodroot, Squill, Valerian, Bittersweet, Belladonna.

Three Ounces to a Pint of Diluted Alcohol :

Peruvian Bark, Rhatany, Poison Hemlock, Sheep-Laurel, Stramonium, White Hellebore, Yarrow, Prickly Elder, Jalap.

Four Ounces to a Pint of Alcohol :

Nux Vomica, Ginger, Guaiacum, Black Cohosh.

Four Ounces to a Pint of Diluted Alcohol :

Yellow Jessamine, Prickly-ash Berries, Ergot, Matico.

The following tinctures embrace those which vary from the above proportions among the simple tinctures, and also the compound tinctures :

Tincture of Orange-Peel. — Take three and a half ounces of dried orange-peel and one quart of diluted alcohol. Macerate for seven days, express and filter.

Tincture of Buchu. — Take five ounces of buchu, and one quart of diluted alcohol. Digest seven days ; pour off the clear liquor, and filter.

Tincture of Indian Hemp. — Take of extract of Indian Hemp (*Cannabis Indica*) one ounce, and one pint of alcohol. Dissolve the extract in the spirit. Dose, from twenty to thirty drops.

Tincture of Cantharides. — Take an ounce of bruised Spanish flies, and two pints of diluted alcohol. Macerate for fourteen days, express and filter through paper.

Dose, from twenty drops to a dram, three or four times a day.

Tincture of Cayenne Pepper. — Take an ounce of pulverized cayenne, and two pints of diluted alcohol. Macerate fourteen days, and filter through paper.

Tincture of Catechu. — Take an ounce and a half of catechu, an ounce of bruised cinnamon, and one pint of diluted alcohol. Let them stand together two weeks, frequently shaking; then express and filter.

Dose, from thirty drops to a tablespoonful.

Tincture of Cinnamon. — Take an ounce and a half of powdered cinnamon, and one pint of diluted alcohol. Let them stand together for two weeks; express and filter.

Dose, from one to three teaspoonfuls in sweetened water.

Elixir Vitriol. — Take half a pint of alcohol; drop into it seven fluid drams of sulphuric acid, and let the mixture stand three days in a close vessel; then add two drams of powdered ginger, and three drams of powdered cinnamon. Macerate seven days, and filter.

Useful in diarrhœa, dysentery, etc. Dose, from five to fifteen drops. To avoid injury to the teeth, it should be taken through a quill, or glass tube, or else the mouth should be rinsed immediately after swallowing it. Use with care.

Tincture of Lobelia. — Take four ounces of lobelia, and one pint each of distilled vinegar and alcohol. Macerate two weeks, express and filter.

Dose, as a nauseant or expectorant, from thirty to forty drops.

Tincture of Opium. (*Laudanum*). — Take two and a half ounces of opium, and two pints of diluted alcohol. Macerate fourteen days, express, and filter through paper. Dose, from ten to twenty drops.

Tincture of Tolu — Dissolve one ounce of balsam of tolu in one pint of alcohol, and filter.

Tincture of Rhubarb. — Take three ounces of bruised rhubarb, half an ounce of bruised cardamom, and a quart of diluted alcohol. Macerate two weeks, express, and filter through paper.

Tincture of Virginia Snake-Root. — Take three ounces of bruised Virginia snake-root, and one quart of diluted alcohol. Macerate two weeks, express, and filter through paper.

This is advantageously added to the infusion of Peruvian bark, in low states of the system. Dose one to two fluid drams.

Compound Tincture of Aloes. — Take three ounces of powdered aloes, one ounce of saffron, and two pints of tincture of myrrh. Macerate fourteen days, and filter.

This is the well-known *elixir proprietatis*, or more commonly, *elixir pro*. It is considerably used in female disorders, connected with suppressed, retained, or deficient menstruation. Dose, one to two fluid drams.

Compound Tincture of Assafœtida.— Take half an ounce each of lupulin, assafœtida, in small pieces, bruised stramonium seeds, powdered valerian root, and one pint and a half of alcohol; macerate two weeks, shaking frequently, then express and filter.

This is anodyne and antispasmodic, and is used in epilepsy, St. Vitus's dance, and hysterics. Dose, a teaspoonful.

Compound Tincture of Benzoin.— Take three ounces of benzoin, two ounces of purified storax, one ounce of balsam of tolu, half an ounce of powdered aloes, and two pints of alcohol. Macerate two weeks and filter.

This is used in chronic diseases of the air-passages. Dose, from thirty to fifty drops.

Compound Tincture of Cardamom.— Take six drams of bruised cardamom, two ounces of bruised caraway, five drams of bruised cinnamon, five ounces of seeded raisins, one dram of bruised cochineal, and two pints and a half of diluted alcohol. Macerate two weeks, and filter.

This is a very agreeable aromatic; used as a carminative, and to improve other preparations. Dose, one or two fluid drams.

Compound Tincture of Catechu.— Take three ounces of catechu, two ounces of bruised cinnamon, and two pints of diluted alcohol. Macerate fourteen days, express and filter.

This is frequently added to chalk preparations for diarrhœa, etc. Dose, from one to three fluid drams.

Compound Tincture of Cinnamon.— Take one ounce of bruised cinnamon, half an ounce of bruised cardamom seeds, three drams of bruised ginger, and two pints of proof spirits. Macerate fourteen days, express, and filter.

This is a warm, aromatic tincture, useful in spasms and debility of the stomach. Dose, one to two fluid drams.

Compound Tincture of Black Cohosh.— Take one fluid ounce of tincture of black cohosh, half a fluid ounce of tincture of blood-root, and two fluid drams of tincture of poke-root. Mix.

This is used in diseases of the lungs, liver, and stomach. Dose, from twenty to fifty drops, three or four times a day.

Compound Tincture of Blue Cohosh.— Take one ounce of powdered blue-cohosh root, half an ounce each of bruised water-pepper and ergot, two fluid drams of oil of savin, and twelve fluid ounces of alcohol; mix, macerate for a fortnight, and filter.

A uterine tonic, used for suppressed and painful menstruation, etc. Dose, a teaspoonful, two or three times a day.

Compound Tincture of Colchicum.— Mix one fluid ounce each of tincture of black cohosh and tincture of colchicum-seed.

Used for inflammatory rheumatism and gout. Dose, ten to fifty drops.

Compound Tincture of Gentian. — Take two ounces of bruised gentian, one ounce of orange-peel, half an ounce of bruised cardamom seeds, and two pints of diluted alcohol. Macerate fourteen days, express, and filter.

An elegant bitter, much used in dyspepsia, and as an addition to tonic mixtures for a weakened state of the stomach. Dose, one or two fluid drams.

Compound Tincture of Golden Seal. — Take one ounce each of powdered lobelia-seed and golden seal, and one pint of diluted alcohol. Macerate two weeks, express, and filter.

This is used as a local application to diseased mucous membranes, in leucorrhœa, gleet, etc.

Ammoniated Tincture of Guaiac. — Take four ounces of powdered guaiac, and a pint and a half of aromatic spirits of ammonia. Macerate for two weeks, and filter.

This tincture has considerable reputation in the treatment of chronic rheumatism. Dose, one or two fluid drams.

Compound Tincture of Hemlock (*Golden Tincture*). — Take one ounce each of powdered balsam of tolu, guaiacum, gum hemlock, and gum myrrh, one ounce and a half of oil of hemlock, one ounce of oil of wintergreen, and four pints of alcohol. Mix, let them stand fourteen days, shaking frequently, then filter.

This is used by the Eclectics for rheumatism, wind colic, water-brash, soreness of the chest, etc. Dose, a teaspoonful in a wineglassful of water.

Compound Tincture of High Cranberry. — Take one ounce of high cranberry bark, powdered, half an ounce each of powdered lobelia-seed and bruised skunk-cabbage seed, two drams each of bruised stramonium-seed, powdered bloodroot and capsicum, and two pints of alcohol. Macerate two weeks, express, and filter.

This is an Eclectic remedy, and is useful in nervous and spasmodic complaints, particularly hysterics, etc. Dose, from twenty drops to a teaspoonful.

Compound Tincture of Lavender. — Take three fluid drams of oil of lavender, one dram and a half of oil of anise, one ounce of powdered cloves, three drams of mace, one ounce of raisins, two ounces of red saunders, and one gallon of Jamaica rum. Mix, and macerate fourteen days, then express and filter.

This is often used for flatulence, hysterics, and faintness. Dose, from one to three teaspoonfuls, in water.

Compound Tincture of Lobelia. — Take one ounce each of coarsely powdered lobelia, bloodroot, skunk-cabbage, wild ginger, and pleurisy root. Place them in a vessel, and pour over them one pint of boiling water or vinegar, and cover tightly. When cold, add three pints of alcohol. Macerate two weeks, then express and filter.

A valuable emetic for infants and children, in croup, whooping-cough, bronchitis, and convulsions. Used also as an expectorant, in coughs, pleurisy, etc. Dose, as an emetic for a child, half a teaspoonful and upwards.

Compound Tincture of Lobelia and Capsicum. — Take one ounce each of powdered lobelia, capsicum, and skunk-cabbage, and one pint of diluted alcohol. Mix, macerate fourteen days, and filter.

A prompt antispasmodic in cramps, spasms, lock-jaw, etc. Dose, half a dram to a dram.

Compound Tincture of Myrrh (*Hot Drops*). — Take four ounces of bruised myrrh, two ounces of capsicum, and four pints of alcohol. Mix, macerate a fortnight, and filter.

Applied externally, and occasionally given internally for distress of stomach, flatulence, etc.

Camphorated Tincture of Opium. — Take one dram each of powdered opium and benzoic acid, one fluid dram of oil of anise, two ounces of clarified honey, two scruples of camphor, and two pints of diluted alcohol. Macerate fourteen days, and filter.

This is known to all the world as *paregoric elixir*. It is an agreeable anodyne and antispasmodic, and a good deal used among children to allay cough, and to relieve pains, diarrhoea, etc.

Compound Tincture of Peruvian Bark. — Take two ounces of red bark, powdered, one ounce and a half of bruised orange-peel, three drams of bruised Virginia snake-root, one dram each of saffron, cut, and red saunders, rasped, and twenty fluid ounces of diluted alcohol. Macerate two weeks, express, and filter.

This is *Huxham's tincture*. It is an excellent stomach cordial, and is used with advantage in low forms of fever, etc. Dose, from one to three fluid drams.

Compound Tincture of Rhubarb (*Sweet Tincture of Rhubarb*). — Take two ounces and a half of bruised rhubarb, six drams of bruised liquorice root, three drams each of bruised ginger and saffron, two ounces of refined sugar, and one quart of diluted alcohol. Macerate one week, express, and filter.

A warm, gentle aperient, well fitted for debilitated states of the stomach. Dose, from a dram or two to an ounce.

Tincture of Senna and Jalap (*Elixir Salutis*). — Take three ounces of senna, one ounce of powdered jalap, half an ounce each of bruised coriander and caraway seeds, two drams of bruised cardamom seeds, four ounces of sugar, and three pints of diluted alcohol. Macerate two weeks, express, and filter.

This is a warm cordial purgative, useful in costiveness, and gout attended with debility. Dose, two fluid drams to an ounce.

Compound Tincture of Tamarac (*Bone's Bitters*). — Take three ounces each of tamarac-bark and juniper-berries, two ounces of

prickly-ash bark, one ounce and a half each of wild-cherry bark and seneca snake-root, and half an ounce of tansy; powder coarsely, and mix; then add one pint and a half of whiskey, and let them stand twenty-four hours; then place the whole in a vapor displacement apparatus, and force through the mixture the vapor of another pint of whiskey, after which steam from water enough to make the tincture equal to six quarts. To this add twelve ounces of molasses, and six ounces of thoroughly dissolved alcoholic extract of mandrake.

This is tonic, diuretic, and aperient. Useful in dyspepsia, etc. Dose, a tablespoonful three times a day.

Ammoniated Tincture of Valerian. — Take four ounces of bruised valerian, and one quart of aromatic spirit of ammonia. Macerate two weeks, express, and filter.

This is used as an antispasmodic in hysterics and other nervous diseases. Dose, one or two fluid drams, in sweetened water.

Compound Tincture of Virginia Snake-root (*Sudorific Tincture*). — Take eight scruples each, in coarse powder, of Virginia snake-root, ipecacuanha, saffron, opium, and camphor, and one pint of Holland gin or proof spirit. Mix, macerate two weeks, express, and filter.

This tincture tends powerfully to induce perspiration, and is used for such purpose when it is desirable to procure sleep, etc. Dose, from ten drops to a teaspoonful, every hour or two, in catnip or balm tea.

Vinegars.

Vinegar of Lobelia. — Take two ounces of powdered lobelia-seed, and one pint of distilled vinegar. Macerate in a close vessel one week; then express and filter, and add one fluid ounce of alcohol. This is useful as an emetic and expectorant; externally, it is valuable in skin diseases. Dose, one to four teaspoonfuls, as often as necessary.

Vinegar of Squill. — Take two ounces of sliced squill, and one pint of distilled vinegar; macerate in a close glass vessel one week, then express, strain, and add one fluid ounce of alcohol.

This is expectorant and diuretic, and is sometimes used for coughs and diseases of the chest.



Lemons.

One of the leading physicians of New York says Lemons are one of the greatest blessings God has bestowed upon mankind.

Most of the lemons used in the civilized world come from the Island of Sicily.

They are very healthful and good, not only for allaying thirst, but will cure a multitude of disorders.

The juice of a lemon contains citric acid, and as a result decreases the acid secretions of the body and increases the alkaline. Citric acid, which is the acid of the lemon, not only decreases the secretion of gastric acid but increases very materially the secretion of saliva. The very thought of a lemon is sufficient to make the mouth water.

Debility.

If you feel "so tired" your bones ache, and you have a bad taste in your mouth, squeeze lemon juice into fresh water enough to make a sour beverage and drink freely of it many times a day, for it is surely a foe to sour stomach and bile—it will pass it off through the natural channels and leave the stomach, liver and kidneys in a fresh and more healthful condition.

Headache.

If you have a throbbing headache, drink the juice of half a lemon in fresh water, repeat the other half in thirty minutes; take a slice of lemon and rub the bits over the brow and temples and the pain will soon go away.

Heartburn.

LEMON juice taken before meals will be found very advantageous as a preventive and cure for heartburn.

Fevers.

WHEN the mouth is parched and dry, lemon juice added to a little warm water and given in small doses will increase saliva and refresh the patient. This should not be given if the bowels are disordered.

Dyspepsia.

JUICE of half a lemon should be taken in a little warm water before each meal; avoid sweets. Repeat for several days and a marked improvement will surely follow.

Rheumatism or Gout.

THE juice of a lemon should be taken in a little warm water at night just before retiring. This has proved a very beneficial relief to the most obstinate cases.

Colds and Coughs.

TAKE the juice of two lemons, add ten drops of camphor and a

tablespoonful of granulated sugar. Mix well and take a teaspoonful every half hour until relief is obtained.

For the Hair.

IF your hair is falling out, rub slices of lemon thoroughly into the roots and over the scalp, washing the head afterwards with warm, soft water. This is a sure cure for dandruff and preserves and strengthens the roots of the hair.

For the Complexion, Face or Freckles.

SQUEEZE lemon juice into milk, rub the mixture over the face and neck. Leave on over night and you will rejoice in the fresh glow of your complexion. This will also remove tan and freckles.

For the Hands.

MIX lemon juice and glycerine, rub your hands with it at night, and if you are not too nervous, wear large old gloves and you will wonder at their dazzling whiteness.

For Mosquito or Insect Bites.

TOUCH the hurt spot with pure lemon juice and you will soon find relief and cure.

Removing Corns or Warts.

BIND on a slice of lemon with bandage successively for a few days and the corn or wart can be easily removed.

Poisoning from Opium or Other Narcotics.

GIVE an emetic to cause vomiting, say one-half teaspoonful of mustard in one-half pint of water, then give the juice of a whole lemon in pure water, which will counteract the effects.

Seasickness.

FOR one week before going aboard ship take the juice of a lemon in pure water just before eating breakfast. This has been tried and proved as a sure preventive by many travelers.

La Grippe.

TAKE as hot a bath as you can bear, soak the feet for twenty minutes in hot mustard water, immediately going to bed; covering yourself up well, drink the juice of a lemon in hot water, this will cause perspiration and relief. Be careful going out of doors next day and avoid drafts and cold.



BLACKBERRY.

Sure cure for diarrhoea and dysentery. Be sure and use this valuable remedy. No doctor is needed when this is taken faithfully. (See index under Blackberry.)



CELERY.

For nervous complaints make a tea by boiling celery stocks and leaves until very soft; drink several times a day. The above also gives immediate relief from rheumatism.



CAYENNE PEPPER.

Well known and most useful remedy for Scarlet Fever. (See index Cayenne Pepper.)



DANDELION.

Sure cure for Dyspepsia. Liver Complaint, etc. (See index under Dandelion.)



HYDRANGEA.

Infalible in dissolving and removing Gall and Bladder Stones. (See index under Hydrangea.)



POKE.

Sure cure for Felons and Tumors. (See index under Poke.)



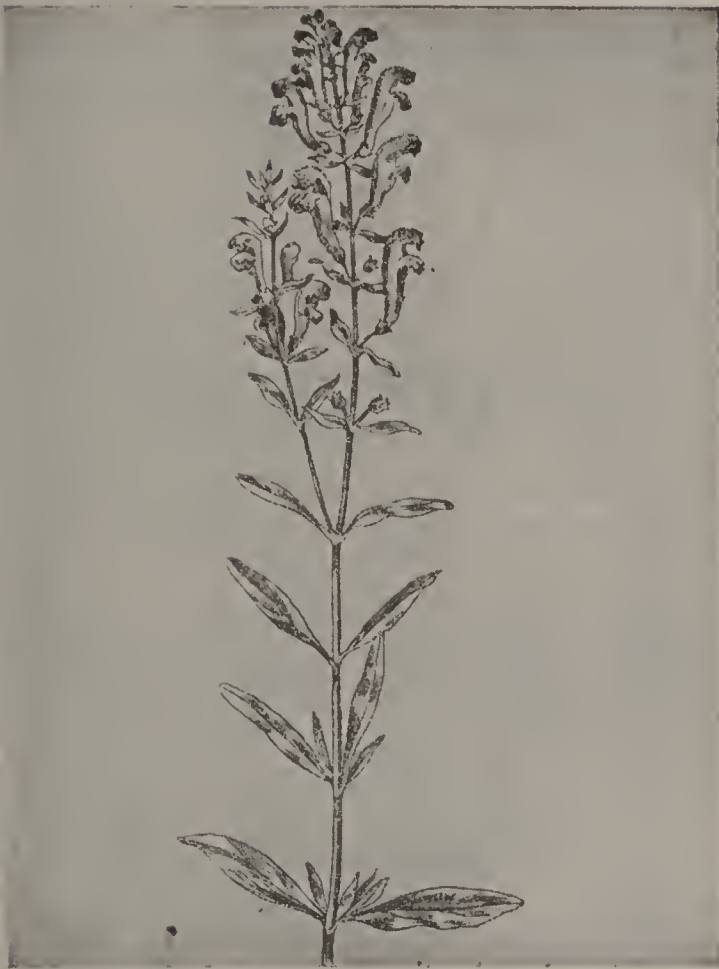
PUMPKIN.

Most valuable for expelling the Tape Worm. Will expel the head of the worm, which is absolutely necessary to insure permanent relief. (See index under Pumpkin.)



TOMATO.

The Tomato is a valuable remedy for Cholera Infantum. Prepare by taking several ripe tomatoes, peel and add sugar to the taste, strain and give a teaspoonful every half hour until cured



SKULLCAP.

Sure cure for Neuralgia and Sciatica. This remedy is easily prepared in the home. (See index under Skullcap.)



STAR GRASS.

Sure cure for suppressed or painful menstruation and womb complaint. (See index under Star Grass.)



TULIP.

(Poplar or White Poplar.)

Sure cure for Fever and Ague. This remedy is used with great success in curing long standing cases of this disease. (See index under Tulip Tree.)



WHITE POND LILY.

Sure cure for Leucorrhea. (See index under White Pond Lily.)

PRESCRIPTIONS. — RECIPES.

THESE prescriptions are numbered, and referred to by corresponding numbers in the treatment of the various diseases. This arrangement saves the trouble of writing out each prescription every time it is wanted under the several disorders. When there are several recipes, each of which is suitable in a certain stage of a complaint, this plan affords the means of referring to them all in a little space, by simply giving their numbers. The doses named are always for *grown persons*, unless it is otherwise stated. For young people, from 15 to 21, give $\frac{2}{3}$ of dose. For children, from 7 to 15, $\frac{1}{2}$ of dose. In administering medicines of all kinds, the strength and condition of the patient should be taken into consideration.

Great pains have been taken in preparing these prescriptions. A considerable portion of them are the favorite recipes of our most distinguished physicians who have compiled this valuable book. They are compounded from the latest discoveries in medicine.

Emetics.

1. Ipecac powder, in 30-grain doses, taken in lukewarm water and repeated every 20 minutes if needed. Wine or syrup of ipecac is a more useful and palatable emetic for infants and children: it may be given in 1 to 2 teaspoonfuls as a dose. Useful in poisoning, overloaded stomach, croup, etc.

2. Mustard flour is a very prompt emetic and always on hand for an emergency. Dose, 1 dessertspoonful in $\frac{1}{2}$ pint of warm water; repeated in 10 minutes if needed.

3. Sulphate zinc is a very prompt emetic producing little irritation; 30 grains, with thirty of Ipecac, generally suffice, but the dose may be repeated.

4. Apomorphia, when injected under the skin in doses of $\frac{1}{6}$ grain, produces vomiting in 3 to 10 minutes. It may also be given by the mouth in doses of $\frac{1}{3}$ of a grain.

Purges. Cathartics.

5. Precipitated sulphur, 15 grains; magnesia, 1 scruple. Mix. To be taken each night at bedtime, for costiveness and bleeding piles.

6. Confection of senna, 2 ozs.; cream of tartar, 1 oz.; sulphur, 1 oz.; syrup of ginger enough to make a stiff paste. Mix. A piece as large as a nutmeg is to be taken as often as necessary to keep the bowels open. One of the very best remedies for piles.

7. Rochelle salts, 2 drams; bicarbonate of soda, 2 scruples; water, $\frac{1}{2}$ pint. Mix. To this mixture add 35 grains of tartaric acid, and take the whole foaming. This is the recipe for Seidlitz powders.

8. Calcined magnesia, 1 dram; water, 2 ozs. Mix. To be taken at a draught. Husband's magnesia, in powder form, taken in teaspoonful doses every 2 hours till bowels move, is an excellent mild saline.

9. Sulphate of magnesia (epsom salts), 2 drams; freshly roasted coffee in coarse powder, 2 scruples; hot water, 4 ozs. Mix and boil for three minutes, and strain. This may be sweetened, and taken every morning for habitual costiveness, or repeated once in three hours, if an immediate effect is desired.

10. Castor-oil, 1 oz.; the yolk of one egg; put together, and add simple syrup, $\frac{1}{2}$ oz.; peppermint water, 2 ozs. Mix. To be taken at a draught, after being well stirred or shaken. Equally palatable is a tablespoonful or two of castor-oil between 2 layers of lemon juice.

11. Sulphur, 1 dram; cream of tartar, 2 drams. Mix. To be taken in syrup or molasses.

12. Rhubarb, 10 grains; calcined magnesia, $\frac{1}{2}$ dram. Mix. To be taken in syrup or molasses.

13. Powdered senna, $\frac{1}{2}$ dram; powdered jalap, 10 grains; powdered cloves, 10 grains. Mix. To be taken in sweetened water.

14. Compound licorice powder, or so-called German powder, is a thorough physic in heaping teaspoonful doses. It is a physic very commonly used. Best taken in milk, but not bad in water.

15. Garfield tea, bought in packages and steeped per directions, is also a simple cathartic, and may be continued for a while each night. No physic proper should be so used for any great length of time.

16. Castor-oil, 1 dessert spoonful to 2 tablespoonfuls.

17. Castoria is a proprietary medicine, yet one which children and infants take readily and without any deleterious effect.

18. Sulphate of magnesia, 1 oz.; cream of tartar, 1 oz.; pure water, 1 pint. Mix. A wine-glassful occasionally.

19. Compound extract of colocynth, $\frac{1}{2}$ dram; aloin, 2 grains; extract of belladonna, 2 grains. Mix, and divide into 8 pills. One as required.

20. The solution of citrate of magnesia, which all druggists keep in stock in pint bottles, is the most palatable, the simplest, and most efficacious saline we have. The ordinary dose is $\frac{1}{2}$ bottle; this may be repeated in 4 hours.

21. Syrup of figs is another proprietary medicine of some value; it contains senna. Dose, 2 to 4 teaspoonfuls. Is agreeable to children.

22. Aloin, strychnia and belladonna, in pill form, is sold everywhere by druggists, and is a suitable mild cathartic. The pill is put up in varying strengths, but that which contains aloin, $\frac{1}{5}$ grain, is a moderate strength pill.

23. Sulphur, 1 teaspoonful; cream of tartar, 10 grains; saltpetre, 5 grains. Mix. To be taken at a dose.

24. Manna, 2 drams; fennel water, 1 oz. Mix. One dessert spoonful, as a cathartic for an infant.

25. Castoria (See No. 17) and aromatic syrup of rhubarb are good laxatives for children.

26. Cascara sagrada is an herb which has become extremely popular and useful in constipation, as it is a tonic laxative. It is given in various forms, of which the best are the aromatic preparations of cascara, in teaspoonful doses at night, the solid extract in pill form, in doses of $\frac{1}{3}$ to $\frac{1}{2}$ grain, 1 to 3 three times daily, or Maltine with cascara, in 1 to 4 teaspoonful doses at bedtime. These preparations may be continued for long intervals if need be.

27. Epsom salts, 2 drams; dissolve in pure water, 1 oz. Then add sweet spirits of nitre, 2 drams; laudanum, 10 drops. Dose, a teaspoonful, to be repeated according to circumstances.

28. Aromatic syrup of rhubarb, in teaspoonful doses to a young child, or in tablespoonful doses to an older child, is a good corrective.

29. Compound extract of colocynth, $\frac{1}{2}$ dram; extract of jalap, 15 grains. Mix. Make 12 pills. Two or three pills will produce active operation of the bowels. Add ext. belladonna, 2 grs., to prevent gripes.

30. Solution of the citrate of magnesia, in wineglass doses, every two hours, till it operates, or in $\frac{1}{2}$ bottle dose for a single dose.

31. Pulverized gamboge, 12 grs.; pulv. scammony, 12 grs.; elaterium, 2 grs.; croton oil, 8 drops; ext. of stramonium, 3 grs. Mix. Make 12 pills. One pill is a dose, repeated every hour until it operates.

32. Compound cathartic pills, improved, in doses of two to three pills, produce in four hours one or two complete and full operations.

33. See Nos. 17, 20, 21, and 25.

34. Leptandrin, gr. 12; podophyllin, gr. 2; euonymin, gr. 12; inspissated ox-gall, gr. 48. Divide into 24 pills. Take one pill one to three times a day.

35. Pulverized rhubarb, 2 scruples; bicarbonate of potassa, 1 scruple; ext. of nux vomica, 5 grs. Mix. Make 20 pills. One pill twice a day.

36. Leptandrin, grs. 12; ext. nux vomica, grs. 6; euonymin, grs. 12; iridin, grs. 12; ext. cascara sagrada, grs. 8. Divide into 24 pills. Take one pill three times daily if needed.

37. Sweet tinct. of rhubarb, 4 ozs. ; bicarbonate of soda, 2 drams. Mix. From a teaspoonful to a tablespoonful, as occasion may require.

38. Pulverized rhubarb, 2 ozs. ; bicarbonate of potassa, 1 oz. Mix. Of this take enough to produce one movement of the bowels per day.

39. Leptandrin, 30 grs. ; podophyllin, 5 grs. ; pulv. cayenne, 10 grs. ; ext. nux vomica, 6 grs. ; quinine, 12 grs. Mix. Make 24 pills. One, two or three times a day.

40. Podophyllin, 2 grs. ; leptandrin, 10 grains ; cream of tartar, 5 scruples. Mix. Divide into 10 powders. One is a dose.

41. Comp. powder of jalap, 1 oz. ; cream of tartar, 1 oz. Mix. One teaspoonful is a dose, to be taken in sweetened water.

42. Pulverized charcoal, $1\frac{1}{2}$ drams ; pulv. rhubarb, 2 scruples ; pulv. ipecac, 6 grains ; extract of hyoscyamus, 12 grs. Mix. Divide into 12 portions. Give one every three or four hours.

43. Pulverized blood-root, 1 dram ; pulv. rhubarb, 1 dram ; castile soap, 2 scruples. Mix, and divide into 32 pills. Take one morning and night. Excellent for costiveness.

44. Rochelle, 14 drams ; magnesia, 11 drams ; powdered charcoal, 8 drams. Mix. Dose, a heaping teaspoonful, in dyspepsia and costiveness, with foul breath, etc.

45. Pulverized rhubarb, 8 grs. ; pulv. guaiacum, 8 grs. ; galbanum, 2 grs. ; pulv. ipecac, 2 grs. Mix. Make 8 pills. Take one or two pills night and morning. For a weak stomach and a bilious condition.

Tonic and Cathartic.

46. Podophyllin, 4 grs. ; leptandrin, 8 grs. ; quinine, 8 grs. ; ext. nux vomica, 2 grs. Mix. Make 16 pills. One, two, or three pills at bedtime, according to the requirements of the case.

47. Sulphate of iron, 1 scruple ; ext. cascara, 7 grains. Mix and make into 20 pills. One pill twice a day. An excellent remedy in chlorosis, when the bowels are confined.

48. Carbonate of iron, 1 dram ; pulverized rhubarb, $\frac{1}{2}$ dram ; aloin, 6 grains ; extract of hops, $\frac{1}{2}$ dram. Mix. Make 30 pills. One pill three times a day.

49. Fluid extract of senna, 1 dram ; compound fluid extract of gentian, $\frac{1}{2}$ dram ; fluid extract of ginger, $\frac{1}{2}$ dram ; aromatic spirits of ammonia, $\frac{1}{2}$ dram. Mix. To be taken in a wineglassful of sweetened water.

50. Aromatic syrup of rhubarb, 1 oz. ; tincture of colombo, 1 oz. Mix. Dose, two teaspoonfuls three times a day.

51. Compound infusion of gentian, 6 ozs. ; epsom salts, 4 drams ; diluted sulphuric acid, 16 drops. Mix. A tablespoonful every six hours.

52. Tr. aloes, $\frac{1}{2}$ oz. ; pulv. gum-arabic, 5 grs. ; magnesia, 1 dram ; white sugar, 5 grs. ; comp. infusion of gentian, $1\frac{1}{2}$ ozs. ; water, $1\frac{1}{2}$ ozs. ; tinct. of ginger, $1\frac{1}{2}$ ozs. Mix. From a teaspoonful to a tablespoonful to be taken night and morning.

53. Pulverized Peruvian bark, 1 oz. ; pulv. rhubarb, $\frac{1}{2}$ dram ; pulv. muriate of ammonia, 1 dram. Mix. Divide into eight powders. Take one three times a day.

54. Oxide of zinc, 2 drams ; magnesia, $\frac{1}{2}$ oz. ; quinine, 1 scruple. Mix. Divide into 32 powders. Take one four times a day.

55. Sprudel salts, 1 teaspoonful in $\frac{1}{2}$ glass warm water on arising ; crab-orchard water, 1 tablespoonful in $\frac{1}{2}$ glass water on arising ; Hunyadi Janos, $\frac{1}{3}$ glass or more in water ; 1 teaspoonful phosphate of sodium in a glass of hot water on arising ; are all good saline remedies for biliousness.

Carminatives.

56. Manna, 1 oz. ; aniseed, bruised, 1 dram ; boiling water, $\frac{1}{2}$ pint. Mix. Let the mixture stand for half an hour, then strain, and add three drams of carbonate of magnesia, so as to make a perfect mixture. Take a wineglass full every two or three hours till it operates. For the drum-head state of the bowels.

57. Thoroughwort, 2 ozs. ; ginger and cloves, each, $\frac{1}{2}$ oz. ; ext. dandelion, 4 ozs. ; water, $1\frac{1}{2}$ pints. Boil to one-third, and add sugar, $1\frac{1}{2}$ pounds, and brandy, $\frac{1}{2}$ pint. An excellent cordial cathartic to act upon the liver.

Tonics.

58. Chamomile flowers, $\frac{1}{2}$ oz. ; cold water, 1 pint. Macerate for one hour and strain. A wineglassful to be taken several times a day.

59. Sulphate of quinine, 15 grains ; diluted sulphuric acid, 15 drops ; compound tincture of cardamom, 3 drams ; tincture of hops, 3 drams ; compound infusion of roses, 6 ozs. Mix. A teaspoonful two or three times a day, in chlorosis.

60. Diluted sulphuric acid, 2 drams ; syrup of orange-peel, 2 ozs. ; cinnamon-water, 1 oz. Mix. A teaspoonful or two in a wineglass of water two or three times a day.

61. Bland's iron pill, 3 grains, three times daily. This pill is often united with strychnia, $\frac{1}{30}$ grain, and arsenious acid, $\frac{1}{30}$ grain, which adds to its efficiency. If constipation exists, there may also be added ext. cascara, $\frac{1}{3}$ grain, in chlorosis, anaemia, and conditions requiring iron.

62. Sulphate of quinine, 12 grains ; aromatic sulphuric acid, 24 drops ; syrup, 1 oz. ; peppermint water, 1 oz. Mix. In intermittent fever, take one tablespoonful once in three hours. Ordinarily, one teaspoonful is a sufficient dose. Or quinine, 10 grains, four hours before the expected chill.

63. Compound infusion of gentian, 8 ozs. ; nitro-muriatic acid, 30 drops. Mix. Take one tablespoonful three times a day.

64. Bicarbonate of soda, $\frac{1}{2}$ oz. ; compound infusion of gentian, 4 ozs. ; tincture of colombo, 1 oz. ; syrup of orange-peel, $\frac{1}{2}$ oz. Mix. Take a tablespoonful three times a day.

65. Sulphate of quinine, 1 scruple ; alcohol, 4 ozs. ; sulphuric acid, 5 drops ; Madeira wine, 1 quart. Mix. Two wineglassfuls a day.

66. Tinct. gentian compound, teaspoonful in wineglass water before eating.

67. Quinine, 1 scruple; alcohol, 4 ozs.; sulphuric acid, 5 drops. Mix. Take a teaspoonful three times a day, or quinine pills, 2 grs. each, one three times a day.

68. Arseniate of iron, 3 grains; extract of gentian, 2 drams; pulverized licorice, 1 dram. Mix. Make 20 pills. Take one pill three times a day. If the eyelids become inflamed, discontinue for a few days, and then begin again.

69. Soft water, 3 ozs.; quinine, 10 grains; diluted sulphuric acid, 10 drops; simple syrup, 1 oz. Mix. A teaspoonful every two or three hours.

70. Quinine, 10 grains; diluted sulphuric acid, 10 drops; white sugar, 4 drams; cinnamon water, 4 ozs.; tincture of kino, 2 drams. Mix. One teaspoonful every three hours.

71. Tartrate of iron, 40 grains; soft water, 2 ozs.; syrup of ginger, $\frac{1}{2}$ oz. Mix. 20 to 40 drops every three hours.

72. Potassio-tartrate iron, 4 scruples; quinine, 4 scruples; alcoholic ext. of black cohosh, 4 scruples. Mix. Make 48 pills.

73. Pill, citrate of iron, quinine, and strychnia, 2 grains. One pill three times daily.

74. Precipitated carbonate of iron, 30 drams; ext. of conium, 15 drams; syrup of balsam of tolu, 6 ozs.; oil of cinnamon, 12 drops; oil of lemon, 12 drops; alcohol, 2 ozs.; water, 1 pint; brandy, $\frac{1}{2}$ pint; loaf-sugar, 4 ozs. Mix. Give from one to three tablespoonfuls three or four times a day, in insanity.

75. Citrate of iron, 1 dram; sulphate of quinine, 1 scruple; ext. of nux vomica, 8 grs. Mix. Make 32 pills. One pill three times a day.

76. Nitric acid, 1 dram; hydrochloric acid, $\frac{1}{2}$ dram; comp. infusion of gentian, $1\frac{1}{2}$ ozs. Mix. One teaspoonful in water is a dose.

77. Sulph. quinine, 1 dram; tartaric acid, 6 grs.; water, 1 drop. Mix. Make 30 pills. Dose, one pill, to be repeated as often as needed.

78. Diluted nitric acid, 4 drams; diluted muriatic acid, 4 drams; syrup of orange-peel, 1 dram; water, $1\frac{1}{2}$ ozs. Mix. One teaspoonful in a wine-glass of water, taken before meals.

General and Nerve Tonics.

79. Valerianate of iron, quinine and zinc, of each 1 grain in pill form, taken three times daily, is an excellent nervine; or pill sumbul comp., one three times daily.

80. Iron by hydrogen, 48 grs.; arsenious acid, 1 gr.; ext. of nux vomica, 5 grs. Mix. Make 24 pills. For an adult, one pill three times a day.

81. Valerinate quinine, 1 grain; extract valerian, 1 grain; extract of hyoscyamus, $\frac{1}{2}$ grain. One pill every two or three hours till quiet, then one every four or six hours.

82. White vitriol, 1 dram; ext. of nux vomica, 8 grs. Mix. Make 32 pills. One pill three times a day.

83. Strychnia, 2 grs.; ext. of aconite, 16 grs.; ext. of hyoscyamus, 16 grs.; quinine, $\frac{1}{2}$ dram. Mix. Make 32 pills. One pill three times a day.

84. Citrate of iron, 1 dram; trisnitrate of bismuth, 1 dram; sulphate of quinia, 1 scruple; ext. of nux vomica, 6 grs. Mix. Make 32 pills. Take one pill three times a day.

Nerve-Tonics and Antispasmodics.

85. Strychnine, 2 grs.; ext. belladonna, 5 grs.; alcoholic extract of black cohosh, 2 scruples. Mix. Make 40 pills. One pill four times a day.

86. Strychnine, 2 grs.; diluted phosphoric acid, 1 oz.; peppermint water, 3 pints. Dissolve the strychnine in the acid; then add the peppermint water. A tablespoonful to be taken three times a day, in palsy, dyspepsia, neuralgia, and in most states of the nervous system requiring tone. Also in fever and ague.

87. High-cranberry bark, 1 oz.; skunk-cabbage root, $\frac{1}{2}$ oz.; scullcap, $\frac{1}{2}$ oz.; cardamom seeds, 2 drams; pulv. cayenne, 2 drams. Put these to a pint of wine; shake well every day for three or four days. A tablespoonful four times a day.

88. Aconitia, $\frac{1}{400}$ grain; antifebrin, 2 grains; quinine, 1 grain; arsenic chlorophos., $\frac{1}{100}$ grain; strychnia, $\frac{1}{120}$ grain. One pill. Take one such pill every two to four hours, according to pain. Used in neuralgia.

89. Extract of valerian, 12 grs.; extract of hyoscyamus, 12 grs.; oxide of zinc, 24 grs. Mix. Make 12 pills. One pill twice a day.

90. Extract of hyoscyamus, 48 grs.; extract of valerian, 24 grs.; camphor, 24 grs. Divide into 24 pills. Take one every four hours.

91. Extract of hyoscyamus, $\frac{1}{2}$ dram; aconitia, $\frac{1}{5}$ gr.; strychnine, 2 grs.; pulverized cayenne, $\frac{1}{2}$ dram; phosphide of zinc, 5 grs. Make 30 pills. Take one four times a day. Excellent in neuralgia.

92. Antikamnia, 60 grs.; caffein, 24 grs.; divide into 12 capsules. Take one every two hours for neuralgia of face. See also 88.

93. Valerianate of iron, valerianate of zinc, valerianate of quinine; of each, 30 grs., to be divided into 30 pills or capsules. Take one three times a day for the neuralgic condition.

94. Tincture of veratrum viride, 2 drams; bromide of soda, 4 drams; elixir of anise, 1 oz.; syrup of orange, 2 ozs. Take a teaspoonful in wineglass of water every two to four hours according to nervousness.

95. Strychnine, 1 gr.; arsenious acid, 1 gr.; quinine, 20 grs.; reduced iron, 20 grs.; extract cannabis indica, 5 grs. Divide into 30 pills or capsules. Take one three times daily.

96. Simple syrup, 1 oz.; prussic acid, 1 drop. Mix. A teaspoonful morning and evening. If no dizziness or sickness is produced within forty-eight hours, repeat the dose three times a day. This is for a child six months old; add one drop more of the acid for each additional year of the child's age.

97. Phosphide of zinc, 5 grs.; extract of nux vomica, 7 grs.; extract of cannabis indica, 5 grs. Divide into 30 pills or capsules, and take one three times daily as a nerve tonic.

98. Quinine, 12 grs.; reduced iron, 10 grs.; arsenious acid, $\frac{1}{2}$ gr.; phosphide of zinc, 2 grs. Divide into 24 pills. Take one three times daily for a child from 8 to 12 years of age. For St. Vitus's dance. Or, Fowler's solution, 1 oz. Give 3 drops to a child of 8 to 12 years in a little water three times daily, and increase dose by one drop every third day till eyes become puffy or nose waters. Then stop for three days and begin again. Give also pepto-mangan, 1 bottle; a teaspoonful three times daily. This latter is an elegant form of mild iron, and does not stain the teeth or constipate.

99. Phenacetin, 50 grs.; divide into 6 powders; give one every two hours till pain ceases. Or chlorodyne, one dram; aromatic spirits of ammonia, one dram; elixir simplex, 1 oz. Mix. One teaspoonful in a tablespoonful of hot water every 20 minutes till relieved.

100. Extract of high cranberry bark, 1 scr.; euonymin, $\frac{1}{2}$ scr.; iridin, $\frac{1}{2}$ scr.; pulverized cayenne, 1 scr. Mix. Make 20 pills. Take one pill an hour after each meal. Simpler yet is a tablespoonful of crab-orchard water in $\frac{1}{2}$ glass plain water once or twice a day.

101. Iodide of potash, peppermint water; of each 2 ozs. Give 10 to 30 drops in $\frac{1}{3}$ glass water three times daily on a full stomach; for secondary and tertiary syphilis and similar complaints. For a child give 5 to 10 drops.

102. Elixir of the three iodides, 6 ozs.; one teaspoonful in water three times daily.

103. Syrup of iodide of iron, 1 oz. Thirty drops three times a day, in water. An excellent remedy in chlorosis, and all other low states of the blood connected with scrofula. Or, a pill of iodide of iron, 1 gr., three times daily.

Expectorants and Cough Preparations.

104. Apomorphia, 1 gr.; chloroform, 10 drops; elixir yerba santa, 2 ozs. Take one teaspoonful every two hours.

105. Infusion of senega, 4 ozs.; syrup of ipecac, 1 dram; syrup of squills, 3 drams; tartar emetic, $1\frac{1}{2}$ grs. Mix. A teaspoonful every ten minutes.

106. Wine of ipecac, $1\frac{1}{2}$ drams; chloroform, 5 drops; syrup of tolu sufficient to make 1 oz. Give $\frac{1}{2}$ teaspoonful every two hours for a child three years old.

107. Tincture aconite, 20 drops; wine of antimony, $1\frac{1}{2}$ drams; chloroform, 10 drops; elixir terpin hydrate, enough to make 2 ozs. Give teaspoonful every two hours.

108. Bromoform, 1 oz. Give 5 drops in tablespoonful of water four times daily to a child eight years old suffering with whooping cough. This dose is to be well mixed and quickly given, because bromoform does not mix well with water. It is to be increased by 1 drop every other day till about 10 drops are given at a dose. Other ages in proportion. Burn also a cresolene lamp.

109. Tincture bloodroot, $4\frac{1}{2}$ ozs.; wine of ipecac, 2 drams; tincture of aconite 20 drops; honey, $\frac{1}{2}$ oz.; McMunn's elixir, $1\frac{1}{2}$ drams; elixir yerba santa to make 3 ozs. Take teaspoonful every two hours.

110. Wine of ipecac, 2 drams; chloroform, 15 drops; liquid Dover's 1 dram; linoline, or compound emulsion of flax-seed (omitting the chloral and morphine) enough to make 3 ozs. One teaspoonful every two hours: for hard, dry cough.

111. Tincture of lobelia, 2 drams; tincture of bloodroot, 4 drams; honey, 1 oz.; dilute hydrocyanic acid, $1\frac{1}{2}$ drams; cherry-laurel water enough to make 3 ozs. Give one teaspoonful every two hours.

112. Syrup of tolu, 1 oz.; syrup of squills, $\frac{1}{2}$ oz.; wine of ipecac, 2 drams; codeia, 2 grs.; mucilage of gum-arabic, $1\frac{1}{2}$ ozs. Mix. Take a teaspoonful occasionally.

113. Tincture bloodroot, 2 drams; syrup of tolu, 1 oz.; mucilage of gum-arabic, 3 ozs.; diluted hydrocyanic acid, 40 drops; codeia, 4 grs. Mix. Dose, from one to two teaspoonfuls.

Carminatives.

114. Aromatic spirits of ammonia, 2 drams; tincture of cardamom compound, 1 oz.; tincture of capsicum, 10 drops; chloroform, 15 drops; spirits of lavender compound enough to make 2 ozs. Give teaspoonful in wineglass of hot water every fifteen minutes till relieved.

115. Compound tincture of cardamom, 2 ozs.; compound tincture of lavender 2 ozs; Hayden's Viburnum Compound, 2 ozs. Mix. One teaspoonful at a time, as occasion may require.

Narcotics and Anodynes.

116. Hayden's viburnum compound, or dioiviburnum. One teaspoonful every $\frac{1}{2}$ hour while in pain. Two tablespoonfuls of gin, and even of brandy in hot water also relieve at times.

117. Powdered camphor, 12 grs.; powdered Castile soap, 12 grs., codeia, 4 grs.; syrup, 2 scrs. Mix. Make into 12 pills. Take one every hour till the effects of opium are experienced.

118. Laudanum, $\frac{1}{2}$ oz.; wine of ipecac, $\frac{1}{2}$ oz.; spirits of nitric ether, $\frac{1}{2}$ oz. Mix. One teaspoonful every hour, till narcotic effects are observed.

119. Camphor, 2 drams; chloroform, 1 dram; the yoke of an egg. Mix, and rub together; and then add, McMunn's elixir, 3 drams; aromatic spirits of ammonia, 1 oz. Mix well. Take one teaspoonful every hour until it proves anodyne.

120. Camphor, $\frac{1}{2}$ dram; extract of hyoscyamus, 20 grs.; mucilage of gum-arabic, 2 scrs. Make 10 pills.

121. Chloroform, 2 ozs.; compound sulphuric ether, 2 ozs.; cardamom, 2 ozs.; tincture cayenne, $1\frac{1}{2}$ ozs.; hydrocyanic acid, diluted, $\frac{1}{2}$ oz. Mix. Dose, half a teaspoonful every three hours till anodyne effects are experienced.

122. Extract of belladonna, 10 grs.; hydrocyanic acid, 40 drops; tincture colombo, 1 oz.; simple syrup, 1 oz.; soft water, 2 ozs. Mix. One teaspoonful three or four times a day. Excellent in gastralgia and irritable dyspepsia. Also in asthma.

123. Extract of belladonna, 6 grs.; pulverized ipecac, 10 grs.; confection of roses, 2 grs. Mix. Make 30 pills. Take 1 pill twice a day.

Diaphoretics and Sedatives.

124. Tincture of American hellebore, 1 dram; tincture of blank cohosh, 2 ozs. Mix. Take one teaspoonful from three to six times a day. Excellent for neuralgia.

125. Pulverized gum arabic, 1 scr.; soft water, 2 ozs.; sweet spirits of nitre, $\frac{1}{2}$ oz.; tincture of veratrum viride, 20 drops. Mix. Give half a teaspoonful every half hour.

126. Phenacetine, 10 grs. taken on tongue with a glass of hot lemonade; children in proportion to age.

127. Dover's powder, 10 grs. on retiring, taken with hot drink.

Diuretics.

128. Spirits of Mindererus, 2 ozs.; sweet spirits of nitre, 1 oz. Teaspoonful every three hours. 10 to 30 drops, diluted, for children.

129. Diuretin, 10 grs. every two hours.

130. Infusion of digitalis, 4 ozs.; acetate of potash, 2 drams; sweet spirits of nitre, 2 drams; cinnamon water, $1\frac{1}{2}$ ozs. Mix. A tablespoonful every four or five hours.

131. Acetate of potash, 4 drams; lemon juice, 1 oz.; syrup and water of each, 1 oz. Teaspoonful in wineglass of water every two hours.

Refrigerants.

132. Cream of tartar, 2 scrs.; water, 1 quart. Mix. Flavor to suit.

133. Bicarbonate of soda, 30 grs.; water, 6 ozs. Mix. To this mixture add 25 grs. of tartaric acid, and take the whole foaming.

Stimulants.

134. Muriate of ammonia, 1 oz.; soft water, 9 ozs. Mix. Take one tablespoonful three or four times a day.

135. Aromatic spirits of ammonia, 2 drams; ether, 1 dram; chlorodyne, 20 drops; spirits of camphor, 1 dram. Mix. Half a teaspoonful as often as required.

Alteratives.

136. Proto-iodide of mercury, 5 grs.; extract of opium, 5 grs. Mix. Make 20 pills. Take one pill night and morning. For syphilis.

137. Biniodide of mercury, 5 grs.; extract of conium, 2 scrs. Mix. Make 20 pills. Take one pill night and morning. For syphilis.

138. Compound infusion of sarsaparilla, 1 pint; iodide of potassium, $\frac{1}{2}$ oz. Mix. Take a teaspoonful after each meal.

139. Compound infusion of sarsaparilla, 1 pint; corrosive sublimate, 4 grs. Mix. Take a teaspoonful four times a day. For syphilis.

140. Compound infusion of gentian, 4 ozs.; iodide of potassium, $\frac{1}{2}$ oz. Mix. One teaspoonful after each meal, well diluted.

141. Iodide of arsenic, 5 grs.; soft water, 1 pint. Mix. One teaspoonful three times a day.

142. Blue pill, 12 grs.; pulverized ipecac, 3 grs.; extract of hyoscyamus, 4 grs. Mix. Divide into 12 parts, one to be given every three hours. For syphilis.

143. Pulverized bloodroot, 1 scr.; iodide of arsenic, 2 grs.; extract of cicuta, 2 scrs. Mix. Make 40 pills. One pill three times a day.

144. Iodide of potassium, 1 dram; water, $\frac{1}{2}$ oz. Mix. Thirty drops to a child 7 years old, every hour.

145. Compound syrup of stillingia, 1 pint; iodide of potassium, 1 oz. Mix. A tablespoonful after each meal.

146. Fluid extract of sarsaparilla, 4 ozs.; fluid extract of pipsissewa, 1 oz.; water, 1 quart; iodide of potassium, 2 ozs. Mix. Take a tablespoonful three times a day.

147. Bicarbonate of potassa, 3 drams; water, 4 ozs. Mix. Add a tablespoonful of the solution to the same quantity of lemon juice, previously mixed with a tablespoonful of water. To be taken foaming, several times a day.

148. Blue pill, $\frac{1}{2}$ dram; extract of henbane, 1 scr. Make 10 pills. One pill at night. For syphilis.

149. Mercury with chalk, $\frac{1}{2}$ dram; extract of conium, 1 scr. Make into 8 pills. Take one pill night and morning. For syphilis.

150. Corrosive sublimate, 4 grs.; extract of opium, 5 grs. Mix, and make into 20 pills. Take one pill night and morning. For syphilis.

151. Iodide of potassium, 1 dram; syrup of sarsaparilla, 4 ozs. Mix. Take two teaspoonfuls three times a day. For syphilis.

Astringents.

152. Sugar of lead, 2 scrs.; ergotine, 1 scr.; conserve of red roses, 1 scr. Beat into a mass, which is to be divided into 30 pills. Take one every hour, until beneficial effects are observed.

153. Tully's powder, $\frac{1}{2}$ dram; prepared chalk, 1 scr. Mix, and divide into 12 equal powders.

154. Chalk mixture, 4 ozs.; tincture of catechu, $\frac{1}{2}$ oz.; papine, 3 drams. Mix. Dose, in diarrhoea, two to four teaspoonfuls three times a day.

155. Oil of turpentine, 1 dram; mucilage of gum arabic, 1 dram; simple syrup, $\frac{1}{2}$ oz.; cinnamon water, 2 ozs. Mix. To be taken at a draught.

156. Sugar of lead, 16 grs.; prepared chalk, 1 dram; pulverized ipecac, 4 grs.; pulverized opium, 2 grs. Mix. Divide into 16 portions, one to be given every three or four hours.

157. Sugar of lead, 8 grs.; vinegar, 8 drops; white sugar, 1 dram; soft water, 1 oz. Mix. A teaspoonful three or four times a day, until the discharges are abated.

158. Prepared chalk, $\frac{1}{2}$ dram; pulverized ipecac, 3 grs. Mix. Make 12 powders. Give one, two or three times a day.

159. Pulverized catechu, 2 drams; bruised cinnamon, $\frac{1}{2}$ dram; boiling water, 5 ozs. Steep in a covered vessel for one hour and strain. A teaspoonful every two, three, or four hours, according to age, nature of the case, etc.

160. Soft water, 1 oz.; sugar of lead, 5 grs.; vinegar, 6 drops; loaf sugar, 3 drams. Mix. A teaspoonful every hour or two.

161. Tincture of catechu, $\frac{1}{2}$ oz.; laudanum, 2 drams; spirits of camphor, 2 drams; tincture of myrrhæ, 2 drams; tincture of cayenne, 2 drams. Mix. Dose, from half a teaspoonful to a teaspoonful, for diarrhœa.

162. Syrup of orange-peel, 1 oz.; tincture of catechu, 2 grs.; tincture of cinnamon, 6 drams; tincture of cardamom, 2 drams. Mix. Dose, a teaspoonful. A valuable remedy in diarrhœa.

Counter-Irritants.

163. Tincture of Spanish flies, 1 oz.; olive oil, 2 ozs.; alcohol, $\frac{1}{2}$ pint. Mix. To be applied externally, watching the effect, so as not to produce a blister.

164. Water of ammonia, 1 dram; olive oil, 1 oz. Mix. Apply to the skin.

165. Mustard powder, 1 tablespoonful. Mix with a little water to make a thick paste. Then spread upon a piece of brown paper or cotton cloth, and cover its surface with a piece of thin muslin to prevent the mustard from sticking to the flesh. Place it upon the sore or painful part, and keep it on fifteen or twenty minutes, or till a good degree of redness is produced.

166. Vinegar of Spanish flies, 1 oz.; spirits of camphor, 1 oz. Mix. To be rubbed gently upon the skin. If applied freely, and rubbed thoroughly in, it may produce a blister.

167. Yellow wax, rosin, lard, each, 6 drams. Melt over a slow fire, and then stir in slowly, when at a very moderate degree of warmth, $1\frac{1}{2}$ drams of pulverized Spanish flies, to make an ointment.

168. Water of ammonia, strong, 1 oz.; alcohol, 1 oz. Mix. Wet a piece of cotton cloth, and lay it upon the painful part, and cover it with flannel to prevent evaporation.

Ointments.

169. Mercurial ointment, 1 oz.; extract of belladonna, 1 oz.; extract of henbane, 1 oz.; camphor, 10 grs. Mix. For external use.

170. Extract of belladonna, $\frac{1}{2}$ dram; vaseline, $\frac{1}{2}$ oz. Mix. To be rubbed on the neck of the womb in painful menstruation.

171. Prussic acid, 2 drams; sugar of lead, 1 dram; cocoanut oil, $\frac{1}{2}$ oz.; vaseline, $\frac{1}{2}$ oz. Make an ointment.

172. Neapolitan ointment, 2 drams; extract of belladonna, 1 dram. Mix.

173. Extract of belladonna, 15 grs.; vaseline, 1 oz. Mix.

174. Sulphuret of lime, 1 dram; camphor, in powder, 15 grs.; vaseline, 1 oz. Make an ointment.

175. Elder-flower ointment, 1 oz.; oxide of zinc, 1 dram. Make an ointment.

176. Oxide of zinc, ointment, 1 oz.

177. Naphthaline, 2 scrs.; vaseline, 1 oz. Make an ointment. To be spread upon linen, and applied to the diseased skin night and morning.

178. Mild nitrate of mercury ointment, 3 drams; sugar of lead, 16 grs.; rose-water ointment, 1 oz.

179. Laudanum, $\frac{1}{2}$ dram; sulphur, $\frac{1}{2}$ dram; oxide of zinc, 1 dram; oil of almonds, 1 oz.; vaseline, 3 ozs. Make an ointment.

180. Olive oil, 4 ozs.; white wax, 2 drams. Melt these together, and then add honey, 2 drams; croton oil, 20 drops.

181. Elder-flower ointment, 1 oz.; pulverized blue vitriol, 1 scr. Make an ointment.

182. Purified beeves' marrow, or lard, 6 drams; oil of sweet almonds, 2 drams; pulverized Peruvian bark, 1 dram. Mix.

183. Pulverized sulphate of copper, 10 grs.; extract of Spanish flies, 5 grs.; vaseline, 1 oz. Mix. Rub into the scalp.

184. Iodide of lead, 1 dram; vaseline, 2 ozs. Mix. To be rubbed on the surface.

185. Iodide of potassium, 1 dram; vaseline, 2 ozs. Mix.

186. Basilicon ointment, 1 oz.; red precipitate, 1 dram. Mix.

187. Iodide of potassium, $\frac{1}{2}$ dram; vaseline, 1 oz. Mix.

188. Veratria, 4 grs.; vaseline, 5 drams. Mix.

189. Tobacco leaves (fresh and sliced), 10 ozs.; diluted acetic acid, 4 pints; basilicon ointment, 13 ozs. Boil the tobacco in the acid, strain, and evaporate the decoction to six ounces. Add this to the basilicon ointment, heated, and stir till cold. For gathered breasts.

Liniments.

190. Sweet oil, 1 oz.; strong water of ammonia, 1 oz. Mix. To be rubbed on with a piece of flannel.

191. Lime-water, 2 ozs.; flax-seed oil, 2 ozs. Mix. Apply outwardly.

192. Olive-oil, 1 oz.; solution of potassa, 2 drams; strong mercurial ointment, 1 dram. Mix.

193. Olive-oil, 4 ozs.; oil of amber, 2 drams; oil of rosemary, 2 drams. Mix.

194. Spirits of turpentine, 1 oz.; linseed oil, 1 oz.; lime-water, 1 oz. Mix. For external use.

195. Oil of hemlock, 2 drams; oil of origanum, 1 dram; camphor, 1 dram; opium, 1 dram; alcohol, 4 ozs. Mix.

196. Soap liniment, 2 ozs.; chloroform, 1 dram. Mix.

197. Tincture of aconite-root, $\frac{1}{2}$ oz.; opium liniment, $\frac{1}{2}$ oz. Mix. For neuralgia, etc. Apply a teaspoonful to the painful part.

198. White soap, 12 ozs.; camphor, 6 ozs.; oil of rosemary, $1\frac{1}{2}$ ozs.; alcohol, 4 pints; opium, 3 ozs. Mix and filter. An excellent liniment, acting at times like a charm in the removal of local pains.

199. Sulphuric acid, 1 dram; spirits of turpentine, 1 dram; olive oil, 3 drams. Mix the oil and spirits of turpentine first, then gradually add the sulphuric acid. A valuable liniment for chilblains. To be rubbed on two or three times a day.

Washes, Lotions, Gargles, etc.

200. Bruised white-oak bark, 1 oz.; water, $1\frac{1}{2}$ pints. Boil down to a pint, and strain. To be used as a wash.

201. Borate of soda or borax, 2 drams; water, 4 ozs. Mix. To be used as a lotion.

202. Alum, 2 drams; water, 4 ozs. Mix. To be used as a lotion.

203. Tannin, 1 scr.; water, 4 ozs. Mix. For external use.

204. Biborate of soda, $\frac{1}{2}$ oz.; rose water, 6 ozs.; sulphate of morphia, 6 grs. Mix. To be used as a wash in itching of the female privates.

205. Chlorinated soda, 1 oz.; water, 12 ozs. Mix. Rinse the mouth with it two or three times a day, but do not swallow.

207. Rose-water, 5 ozs.; sugar of lead, 8 grs.; sulphate of zinc, 8 grs. Mix.

208. Rose-water, $4\frac{1}{2}$ ozs.; nitrate of silver, 2 grs. Mix.

209. Sulphate of zinc, 8 grs.; tannin, 1 scr.; water, 5 ozs. Mix.

210. Chloride of zinc, 6 grs.; soft water, 2 ozs. Mix.

211. Nitrate of silver, 10 grs.; soft water, 1 oz. Mix.

212. Corrosive sublimate, 5 grs.; soft water, 1 pint. Mix.

213. Alcohol, 1 pint; soft soap of potash, 1 pint. Dissolve and filter, then add oil of citron, 1 oz. Mix. It will answer a good purpose if the oil of citron be omitted.

214. Nitrate of silver, 2 scr.; nitric acid, 12 drops; soft water, 1 oz. Mix. Apply with a piece of lint tied to the end of a stick.

215. Copperas, 1 oz.; soft water, 1 pint. Mix.

216. Alcohol, $1\frac{1}{2}$ ozs.; rose-water, 4 ozs. Mix.

217. Corrosive sublimate, 6 grs.; spirits of rosemary, 1 oz.; alcohol, 1 oz.; emulsion of bitter almonds, 6 ozs. Mix.

218. Solution of sugar of lead, 12 drops; laudanum, 1 dram; water, 4 ozs. Mix. To be applied externally only.

219. Nitrate of silver, $1\frac{1}{2}$ drams; soft water, 1 oz. Mix.

220. White vitriol, 1 dram; rose-water, 3 ozs. Mix. Apply outwardly.

221. Hydrocyanic acid, 4 drams; sugar of lead, 15 grs.; alcohol, 4 drams; water, 7 ozs. Mix. Apply externally.

222. Corrosive sublimate, 5 grs.; almond mixture, $\frac{1}{2}$ pint. Mix. Apply externally.

223. Rose-water, 4 ozs.; pulverized borax, $\frac{1}{2}$ oz.; sulphate of morphine, 6 grs. Mix. To be applied to the parts many times a day.

224. Sugar of lead, 2 drams; laudanum, 1 dram; soft water, $\frac{1}{2}$ pint. Mix. For external use.

225. Corrosive sublimate, 5 grs.; cologne, 2 ozs.; soft water, 6 ozs. Mix. For external use only.

226. Acid nitrate of mercury, 1 dram; soft water, 4 ozs. Mix. Apply every second day.

227. Sugar of lead, 3 grs.; soft water, 1 oz. Mix. As a wash in inflammation of the mouth in infants.

228. Mucilage of gum arabic, 1 oz.; syrup of orange-peel, $\frac{1}{2}$ oz.; chloride of lime, 15 grs. Mix.

229. Decoction of Peruvian bark, 3 ozs.; syrup of orange-peel, 1 oz.; chloride of soda, 1 oz. Mix.

230. Creosote, 4 drops; mucilage of gum-arabic, $\frac{1}{2}$ oz.; camphor-water, 8 ozs. Mix.

231. Vinegar, 1 dram; alcohol, 3 drams; simple syrup, 1 oz.; water, 3 ozs. Mix.

232. White-oak bark, 1 oz.; water, 1 pint. Boil away one quarter, and strain; then add alum, 1 scr. Apply to the parts with a soft sponge, or dossil of lint, several times a day.

233. Hydrochloric acid, $\frac{1}{2}$ dram; honey, 1 oz.; rose-water, 1 oz. Mix. Apply three or four times a day.

234. Sulphate of copper, $\frac{1}{2}$ dram; soft water, 1 oz. Mix. To be applied twice a day to the ulcers in gangrene of the mouth.

235. White vitriol, 1 dram; soft water, 2 drams. Mix. Then add honey, 2 drams; tincture of myrrh, 2 drams. To be applied twice a day to the ulcers in gangrene of the mouth.

236. Creosote, 1 dram; alcohol, 1 dram. Mix. To be applied, with a camel's-hair pencil, to the gangrenous ulcers of the mouth, after running a lancet through the sloughs, and touch with a little strong carbolic acid till surface is white. Can repeat next day.

237. Acid nitrate of mercury, $\frac{1}{2}$ dram; soft water, 1 oz. Mix. To be injected into the throat with the shower-syringe, or applied to ulcers with a camel's-hair pencil.

238. Rose-water, 4 ozs.; sugar of lead, 2 drams. Mix. For external use.

239. Rose-water, 2 ozs.; sugar of lead, 1 scruple. Mix. For external use.

240. Tincture of arnica, $\frac{1}{2}$ oz.; cold water, 4 ozs. Mix. For external use.

241. Tincture bloodroot, 2 ozs.; solution chloride of soda, 2 ozs.; tinct. henbane, 2 ozs. Mix.

242. Bucket of warm water; cayenne pepper, pulverized, 1 tablespoonful; ground mustard, 2 tablespoonfuls. Mix. As a foot-bath in suppression, etc.

243. Chlorate of potash, $\frac{1}{4}$ oz.; strong hydrochloric acid, 40 drops; water, 1 pint. Mix. An excellent wash for chronic fetid ulcers, — soon converting a foul ulcer to a healthy-looking one. A good gargle.

244. Powdered golden seal, 1 dram; powdered cranesbill, 1 dram; powdered witch-hazel bark, 1 dram. Mix. Pour upon these half a pint of boiling water. Let them stand till cold. To swab an ulcerated throat in scarlet fever, and for other purposes. Still better, listerine, 1 oz.; peroxide of hydrogen, 2 ozs.; water, 1 oz. Use as a gargle.

245. Pulverized cayenne, 1 dram; salt, 1 dram; boiling water, 1 gill. Mix, and let them stand fifteen minutes. Then add one gill of vinegar. Let them stand an hour, and strain. Put a teaspoonful in a child's mouth once an hour, in malignant scarlet fever.

Injections.

246. Castor oil, 1 gill; pulv. cayenne, 10 grs.; molasses, 1 gill; table salt, 1 teaspoonful; warm water, 1 pint. Mix.

247. Senna leaves, 2 drams. Steep in a pint of water. Then add one ounce of epsom salts, and strain. A quarter of this may also be taken as a brisk purge.

248. Castor oil, 2 ozs.; tincture prickly-ash bark, $\frac{1}{2}$ oz.; comp. tinct. of Virginia snake-root, 2 drams; infusion of boneset and senna, equal parts, $\frac{1}{2}$ pint. Mix.

249. Castor oil, 1 oz.; salts of tartar, $\frac{1}{2}$ oz.; warm water, 1 pint. Mix.

250. Epsom salts, 1 oz.; senna leaves, $\frac{1}{2}$ oz.; pulv. cayenne, 10 grs.; boiling water, 1 pint. Let the water stand upon the senna and cayenne fifteen minutes. Then pour it off, and add the salts.

251. Thoroughwort, 1 oz.; senna, 1 oz.; lobelia, $\frac{1}{2}$ dram; cayenne, 10 grs.; epsom salts, 1 tablespoonful; molasses, $\frac{1}{2}$ pint; boiling water, 1 pint. Make a strong decoction of the herbs, and then add the salt and molasses.

252. Wine of ipecac, 1 oz.; spirits of turpentine, 1 oz.; castor oil, 1 oz.; molasses, $\frac{1}{2}$ pint; warm water, $\frac{1}{2}$ pint. Mix.

253. Flax-seed tea, $\frac{1}{2}$ pint; laudanum, 40 drops. Mix.

254. Nitrate of silver crystals, 10 grains; corrosive sublimate, 5 grs.; sugar of lead, $1\frac{1}{2}$ drams; white vitriol, $1\frac{1}{2}$ drams; soft water, 6 ounces. Mix. An injection for certain forms of whites, etc. Or corrosive sublimate tablets, 1 to 3 pints of water used night and morning.

255. Bruised galls, $\frac{1}{2}$ oz.; two large poppy-heads; water, 1 pint. Boil a quarter of an hour, and strain. For piles.

256. Common salt, 1 oz.; chamomile flowers, $\frac{1}{2}$ oz.; pulv. aloes, 1 dram. Boil the chamomile and aloes five minutes, in one pint of water, then strain and add the salt.

Hair-Oils, Washes, etc.

257. Cologne, 2 ozs.; tincture of Spanish flies, 2 drams; oil of rosemary, 10 drops; oil of lavender, 10 drops. Mix. Apply cautiously. If soreness of the scalp is produced, omit for a short time.

258. Castor oil, $2\frac{1}{2}$ pounds; strongest alcohol, $2\frac{1}{2}$ pints; pulverized Spanish flies, $\frac{1}{2}$ oz.; oil of bergamot, $2\frac{1}{2}$ ozs.; otto of roses, 20 drops.

Mix. Let them stand for a few days, and filter. A superior preparation for keeping the hair from falling, and to prevent dandruff.

259. Tincture benzoin comp., 2 drams; tinct. Spanish flies, 2 drams; castor oil, 6 ozs.; oil bergamot, 1 dram; oil of cassia or verbena, 15 drops; strong alcohol, $9\frac{1}{2}$ ozs. Mix. As a hair wash, better even than the above.

260. Slaked lime, 2 drams; bicarbonate of soda, 3 drams; lard, 2 ozs. Mix.

261. Slaked lime, 1 oz.; bicarbonate of potassa, 2 ozs.; charcoal in powder, 1 dram. Mix. Apply to the parts, and wash off when dry. Keep in well stopped bottles.

262. Slaked lime, 4 ozs.; orris powder, $1\frac{1}{2}$ ozs. Mix. Apply to the parts, and wash off when dry.

263. Spanish white, $\frac{1}{4}$ pound; litharge, $\frac{1}{4}$ pound; slaked lime, $\frac{1}{2}$ pound. Mix. Pulverize in a mortar. To be kept dry. When used, mix with water to a paste the thickness of cream. Spread on the hair and lay over it a wet cloth over night.

264. Sulphur, 1 oz; sugar of lead, 1 oz.; rose-water, 4 ozs. Mix. Apply to the hair.

265. Nitrate of silver, 1 dram; nitric acid, 1 dram; soft water, 1 pint; sap green, 3 drams; pulverized gum-arabic, 1 dram. Mix. Keep well corked.

266. Hydrosulphuret of ammonia, 1 oz.; liquor potassa, 3 drams; soft water, 1 oz. Mix. Apply this with a tooth-brush fifteen or twenty minutes. Then brush the hair over with the following: nitrate of silver, 1 dram; soft water, 2 ozs., using a clean comb to separate the hair.

Miscellaneous.

267. Fluid extract of spurred rye, 2 ozs. Dose, one teaspoonful three times a day. For profuse menstruation from a relaxed state of the womb.

268. Sulphate of iron, 1 dram; sub-carbonate of potash, 1 dram. Mix, and make into 38 pills. One pill twice a day, and gradually increasing to four a day, in chlorosis.

269. Sulphate of iron, 1 dram; extract of hops, 15 grs.; extract of poppies, 15 grs.; oil of cinnamon, 15 drops. Mix, and make into 24 pills. One pill two or three times a day.

270. Oxide of zinc, 2 drams; extract of cicuta, 2 scruples. Mix. Make 48 pills.

271. Pulverized savin, 1 scruple; sulphate of copper, 1 scruple. To be sprinkled on venereal lumps or tumors, called condylomata, on the female genitals, or elsewhere.

272. Balsam of copaiba, 1 oz.; oil of cubebs, 2 drams; laudanum, 1 dram; mucilage of gum arabic, 2 ozs.; sweet spirits of nitre, $\frac{1}{2}$ oz.; compound spirits of lavender, 3 drams; camphor-water, 4 ozs.; white sugar, 2 drams; oil of partridge-berry, 5 drops. Mix. Take a tablespoonful three or four times a day. For gonorrhœa; or capsules of copaiba and cubebs.

273. Balsam of copaiba, 1 oz.; pulverized cubebs, 2 ozs.; essence of peppermint, 30 drops. Make a thick paste, like dough, or get capsules.

274. Pulverized borax, 1 oz.; pulverized white sugar, 1 oz. Mix. A little to be dissolved on the tongue.

275. Pulverized borax, $\frac{1}{2}$ oz.; honey, 4 ozs. Mix.

276. Hydrochloric acid, 1 dram; honey, 1 oz. Mix. For touching large curdy patches in sore mouth of children.

277. Pulverized ipecac, 3 grains; precipitated sulphur, 2 scruples; extract of hyoscyamus, 6 grains. Mix. Divide into 12 parts. One to be taken every three or four hours.

278. Pulverized belladonna-root, 5 grains; compound ipecac powder, 10 grains; precipitated sulphur, $\frac{1}{2}$ dram; white sugar, 2 scruples. Mix. Make 20 powders. One every three hours to a child two years old.

279. Pulverized alum, 25 grains; extract of cicuta, 12 grains; syrup of red poppies, 2 drams; spearmint water, 3 ozs. Mix. A dessert-spoonful every six hours for a child two or three years old.

280. Camphor, 1 dram; sulphuric ether, 1 oz. Mix. Ten drops every half hour.

281. Pulverized rhubarb, 1 scruple; one half scruple Gray powders; aromatic powder, 5 grains. Mix. Divide into 10 powders. One every four or five hours.

282. Pulverized bloodroot, $\frac{1}{2}$ to 1 oz.; chloride of zinc, $\frac{1}{2}$ to 2 ozs.; water, 2 ozs. Add enough wheat flour to make a paste as thick as molasses.

283. Sal. volatile, $\frac{1}{2}$ dram; camphor-water, 1 oz. Mix.

284. Tincture of nux vomica, $\frac{1}{3}$ oz.; tinct. aconite, 2 drams; volatile tinct. of guaiacum, 2 drams. Mix. Thirty drops every three hours.

285. Tincture of black cohosh, 2 ozs.; tinct. of digitalis, 2 drams. Mix. One teaspoonful from two to five times a day.

286. Barberry bark, 1 oz.; pipsissewa herb, 2 ozs.; wild cherry bark, 1 oz.; bitter-root, 1 oz. Mix. Infuse for several hours in 4 pints of water. One tablespoonful three or four times a day.

287. Horse-radish root, 1 oz.; bayberry bark, 1 oz.; barberry bark, 1 oz.; wild cherry bark, 1 oz.; prickly-ash bark, 1 oz. Reduce the whole to a coarse powder, and infuse for several hours in 4 pints of cider. A tablespoonful three or four times a day.

288. Mercury, 95 parts; balsam of storax, 48 parts; diacalon plaster, 312 parts; wax, rosin, turpentine, each, 16 parts; ammonia, bdellium, each, 5 parts; olibanum and myrrh, each, 5 parts; saffron, 3 parts; spirits of lavender, 2 parts. Mix, and spread. For external use only.

289. Populin, 20 grs.; sanguinarin, 10 grs.; pulv. white sugar, 30 grs. Rub well together, and divide into 16 powders. Take one four times a day. At the same time use prescription 73.

290. Ptelein, 24 grs.; hydrastin, 24 grs.; extract of belladonna, 3 grs.; extract of nux vomica, 2 grs. Mix. Make 24 pills. Take one three times a day.

291. Strychnia, 2 grs.; pulv. cantharides, 4 grs.; pulv. arnica-leaves, 1 dram. Mix. Divide into 32 powders. One to be taken three times a day.

292. Wine of colchicum seeds, 1 oz.; fluid extract of dandelion, 1 oz. **Mix.** One teaspoonful three times a day.

293. Willow-bark, 1 oz.; boiling water, 1 pint. Boil for ten minutes, and strain. Dose, a wineglassful once in three hours.

294. Canada balsam, 1 dram; slaked lime, 1 dram. **Mix**, to form a paste. An excellent remedy for toothache, when pressed into the cavity; or use a drop or two of a 4 % cocaine solution.

295. Tincture black cohosh, 1 oz.; iodide of potassium, 2 drams; syrup of ipecac, 1 oz.; spring water, 2 ozs. **Mix.** A teaspoonful three or four times a day, in rheumatism and cell-dropsy.

296. Tincture black cohosh, 1 oz.; tinct. myrrh, 6 drams; camphor, 1 dram; tinct. cayenne, 1 dram. **Mix.** Take 30 or 40 drops four times a day, for dropsy.

297. Solution chloride of soda, 6 drops; water, 2 ozs. **Mix.** To be taken at a draught. A sure remedy for offensive breath from deranged stomach.

298. Cream of tartar, $\frac{1}{2}$ oz.; fresh lemon-peel, bruised, 4 ozs.; white sugar, 4 ozs.; boiling water, 3 pints. **Mix**, and after standing a while, strain.

299. Citric acid, $\frac{1}{2}$ dram; bi-carbonate of potassa, $\frac{1}{2}$ dram; lemon syrup, 1 oz.; soft water, 6 ozs.; epsom salts, 1 oz. **Mix.** Two tablespoonfuls, to be repeated every four hours, if necessary.

300. Hardwood ashes, 1 quart; common soot, $\frac{1}{2}$ gill; water, 6 pints. Digest, settle, and filter. Take one tablespoonful three times a day, in acidity of stomach. Milk of magnesia is also a very simple and efficient remedy.

301. Peppermint water, $1\frac{1}{2}$ ozs.; wine of colchicum-root, $\frac{1}{2}$ oz.; iodide of potash, 3 drs.; magnesia, 1 scruple. Dose.—One teaspoonful three or four times a day. Excellent for rheumatism of a chronic or gouty type. For the acute form of ordinary rheumatism, some form of salicylic acid must be used, like the following: Salicylate of soda, 4 drs.; tinct. cardamom comp., tinct. gent. comp. of each, 2 oz. **Mix**, and take one teaspoonful in water every two hours, till ears ring, then once in three or four hours. Tongaline in one-dram doses, every two hours, is an excellent all-round rheumatic medicine.

302. Cream of tartar, $1\frac{1}{2}$ ozs.; sulphate potassa, $\frac{1}{2}$ oz.; pulv. squills, 2 drs.; tartar emetic, 2 grs. A teaspoonful of this mixture to be taken four or five times a day, in dropsy.

303. Pulv. alum, $\frac{1}{2}$ dram; white precipitate, 1 grain. Rub these well together, and place the powder in a bottle; then add $1\frac{1}{2}$ drams of glycerin. Shake the bottle until the mixture is of the consistence of cream, and repeat the shaking whenever it is about to be applied to the skin. For external use in erysipelas.

304. Copaiba, 5 drams; yolk of one egg; gum of extract of opium, 1 grain; water, 7 ounces. **Mix.** To be used as an injection several times a day in gonorrhœa.

305. Tannin, 3 grains; extract belladonna, $\frac{3}{4}$ gr.; extract conium, $2\frac{1}{2}$ grains; infusion of senna, 3 ozs.; fennel-water and syrup of marshmallow, each $1\frac{1}{2}$ ozs. **Mix.** A tablespoonful to be taken every two hours, in chronic bronchitis and other complaints.

306. Glycerin, 1 dram; tannin, 1 dram. Dissolve the tannin in the glycerin. Excellent for sore nipples, and for chaps and excoriations generally.

307. Collodion, 1 oz.; venice turpentine, $\frac{1}{2}$ oz.; castor oil, 2 drams. Mix. To be applied outwardly, for chilblains and chaps. For cancer, manganic acid. Not as painful as other caustics.

308. Sulphate of copper, 2 grains; wine of opium, 1 dram; soft water, 2 drams. Mix. Apply freely with a soft camel hair brush, three times a day, for purulent ophthalmia.

309. Pure acetic acid, 2 drams; soft water, 3 ozs.; simple syrup, 3 drams. Mix. A teaspoonful is to be taken every three hours, in scarlet fever, at the same time using sheet baths with tepid water.

310. Compound tincture of Peruvian bark, 4 ozs.; citrate of iron, 44 grains; citric acid, 20 grains. Dissolve the citric acid in the tincture, and then the citrate of iron. After a few days filter. Dose, one to two teaspoonfuls.

311. No. 1. Gallic acid, 10 grains; dissolve in alcohol, 2 drams; water, 6 drams. No. 2. Crystals of nitrate of silver, $\frac{1}{2}$ dram; water, $\frac{1}{2}$ oz. Dissolve and add strong liquor of ammonia till it becomes clear; then add powdered gum-arabic, and dilute, if necessary, to 6 drams. This will color black; to color *brown*, reduce it. An excellent hair-dye. Use the common directions where there is a No. 1 and No. 2.

312. Epsom salts, 2 drams; magnesia, 1 scruple; syrup of ginger, 1 dram; spearmint water, 11 drams. Mix. To be taken at a draught. This will be retained by the stomach when most other things are rejected.

313. Diluted nitro-muriatic acid, 2 drams; sweet spirits of nitre, 2 drams; simple syrup, $\frac{1}{2}$ oz., water, $7\frac{1}{2}$ ozs. Mix. Two tablespoonfuls are to be taken three times a day. Excellent in dyspepsia, with foul tongue and inactive liver.

314. Rose-leaves, 1 scruple; boiling water, 8 ozs.; diluted nitric acid, $2\frac{1}{2}$ drams. Mix. After standing half an hour, strain, and use as a wash for ulcers.

315. White vitriol, 1 dram; water, 1 pint. Mix. To be used as a wash for ulcers, etc.

316. Citrate of iron and strychnine, 1 dram; syrup of orange-peel, 2 ozs.; soft water, $\frac{1}{2}$ pint. Mix. Give one teaspoonful three times a day in neuralgia, and in other cases in which a nerve-tonic is needed.

317. Aloes and soap pill, 10 grains. Divide into two pills; or, compound pill of aloes, 10 grs. Divide into two pills.

318. Compound colocynth pill, $2\frac{1}{2}$ scruples; castile soap, 9 grs.; oil of anise, 2 drops. Mix, and make 12 pills. Two to be taken at bedtime.

319. Compound tincture of senna, 2 drams; epsom salts, 2 drams; diluted sulphuric acid, 8 drops; spirits of nitric ether, $\frac{1}{2}$ dram; infusion of rhubarb, 10 drams. Mix. To be taken at a draught.

320. Sulphate of iron, 2 grs.; epsom salts, 2 scr.; diluted sulphuric acid, 10 drops; compound tincture, 1 dram; syrup of poppies, $1\frac{1}{2}$ drams; pimento water, 9 drams. To be taken at a draught twice a day.

321. Pulverized rhubarb, 12 grs.; carbonate of magnesia, 10 grs.; aromatic spirit of ammonia, $\frac{1}{2}$ dram; syrup of ginger, 1 dram; spearmint water, 10 drams. Mix. To be taken at a draught.

322. Comp. infusion senna, 5 drams; infusion rhubarb, 5 drams; comp. tincture cardamom, $\frac{1}{2}$ dram; syrup, $1\frac{1}{2}$ drams. Mix. To be taken at a draught, by dyspeptic persons.

323. Carbonate of soda, 10 grs; aromatic spirit of ammonia, $\frac{1}{2}$ dram; tincture of orange-peel, 1 dram; syrup of orange-peel, 1 dram; compound infusion of gentian, 10 drams. Mix. To be taken at a draught twice a day.

324. Trisnitrate of bismuth, 1 dram; comp. tragacanth powder, 2 drams; compound tincture cardamom, $\frac{1}{2}$ ounce; tincture of ginger, $\frac{1}{2}$ oz.; spearmint water, 7 ounces. Mix. Two tablespoonfuls to be taken twice a day, in dyspepsia.

325. Solution of acetate of ammonia, $\frac{1}{2}$ oz.; tincture of orange-peel, 1 dram; syrup of orange-peel, 1 dram; tincture of cayenne, 20 drops; comp. infusion of orange-peel, 6 drams. Mix. The whole to be taken to relieve headache, after intoxication.

326. Magnesia, 15 grs.; solution of potassæ, 15 drops; comp. tincture of senna, 1 dram; comp. infusion of senna, 6 drams; syrup of ginger, 1 dram; comp. infusion of orange-peel, $\frac{1}{2}$ oz. Mix. Taken at a draught, as an aperient, in sick and bilious headaches.

327. Aromatic spirits of ammonia, 1 dram; tincture of colombo, 1 dram; infusion of colombo, 10 drams; syrup of poppies, 1 dram. Mix. To be taken at a draught, three times a day.

328. Diluted sulphuric acid, 15 drops; diluted hydrochloric acid, 10 drops; tincture of orange-peel, 1 dram; comp. infusion of gentian, 6 drams; syrup of poppies, 1 dram. To be taken at a draught, three times a day, half an hour before meals.

329. Diluted nitric acid, 12 drops; diluted hydrochloric acid, 8 drops; infusion of cascarilla, 11 drams; syrup of poppies, 1 dram. Mix. To be taken at a draught, twice a day.

330. Colocynth co., 6 grs.; comp. pill of rhubarb, 4 grs.; ext. hyoscyamus, 2 grs. Mix. Make two pills; 1 pill to be taken at night.

331. Ext. hyoscyamus, $2\frac{1}{2}$ grs.; pulv. camphor, $2\frac{1}{2}$ grs. Mix. Make two pills; one to be taken when the pain is most severe, in nervous headache; or even better, acetanilid, 8 grs.; camphor, 2 grs.; citrate of caffeine, 4 grs. Divide in four capsules, one every half-hour, for three or four times.

332. Comp. tragacanth powder, 8 grs.; oil of lemon, 3 drops; camphor-water, 11 drams; comp. tinct. cardamom, $\frac{1}{2}$ dram; tincture hyoscyamus, $\frac{1}{2}$ dram; chloroform, 15 drops. Mix.

333. Tinct. hyoscyamus, $\frac{1}{2}$ dram; aromatic spirit of ammonia, $\frac{1}{2}$ dram; syrup of orange-peel, $\frac{1}{2}$ dram; peppermint water, 10 drams. Mix. In nervous and hysterical cases.

334. Soap liniment, $2\frac{1}{2}$ ozs.; liquor ammonia, $\frac{1}{2}$ dram; laudanum, $\frac{1}{2}$ oz. Mix. Make a liniment.

335. Comp. pill of colocynth, 7 grs.; ext. of colchicum, 2 grs.; oil of caraway, 1 drop. Mix, and make two pills. To be taken at bedtime in rheumatic headaches.

336. Chloride of zinc, 6 oz.; pulv. bloodroot, 2 ozs.; myrtle wax, 1 oz.; water of extract of opium, 6 drams; extract of conium, 6 drams. Mix, and make an ointment.

337. Iodide of lead, 1 scr.; glycerin, 1 dram; spermaceti ointment, 2 ozs. Make an ointment.

338. Rhubarb pulv., $\frac{1}{2}$ oz.; spearmint herb, pulv., $\frac{1}{2}$ oz.; pulv. cascarrilla, $\frac{1}{2}$ oz.; pulv. bicarbonate of potassa, $\frac{1}{2}$ oz.; pulv. wild-cherry bark, $\frac{1}{2}$ oz. Mix, and pour on one quart of hot water. Let this stand till cold, and add half a pint of brandy. Dose, half a wineglassful.

339. Ext. belladonna, 6 grs.; pulv. ipecac, 10 grs.; confection of roses, 2 grs. Mix. Make 30 pills, one pill to be taken twice a day.

340. Dioscorein, 12 grs.; pulv. camphor, 4 grs.; pulv. cayenne, 12 grs.; white sugar, 1 scr. Mix. Divide into four powders. Give one every fifteen minutes.

341. Leptandrin, 12 grs.; geranium, 12 grs.; myricin, 12 grs. Mix. Divide into twelve powders, of which one may be given three or four times a day.

342. Quinine, $\frac{1}{2}$ dram; pulv. catechu, 1 dram; pulv. opium, 15 grs. Mix. Make 32 pills. Give one pill three times a day.

343. Compound syrup of rhubarb and potassa, 4 ozs.; tincture of prickly-ash berries, 1 oz.; essence of peppermint, 1 dram; paregoric, 4 drams. Mix. A tablespoonful should be given every hour until it operates gently on the bowels.

344. Pulv. camphor, $\frac{1}{2}$ dram; pulv. opium, 16 grains; pulv. cayenne, $\frac{1}{2}$ dram. Mix. Make 16 pills; one every hour, in cholera.

345. Rhubarb, 4 ozs.; black-cohosh root, 2 ozs.; wild-cherry bark, 2 ozs.; geranium, 2 ozs.: coarsely powder them, and mix. Add two pints of brandy and two pints of water. Let the mixture stand five or six days, stirring often, and then strain. Add four pints of water to the dregs, boil slowly to two pints, strain, and add to this the previous tincture. Sweeten with white sugar. Take a tablespoonful every one, two, or three hours.

346. Beth root, 1 oz.; geranium, 1 oz.; blackberry-root, 1 oz.; wild-cherry bark, 1 oz.; cinnamon, 1 oz. Powder the whole, and add to them $1\frac{1}{2}$ pints brandy, and $1\frac{1}{2}$ pints water. Let them stand several days, stirring frequently. Add sweetening if preferred. Dose, one or two teaspoonfuls every two or three hours.

347. Raspberry leaves, 1 oz.; geranium, 1 oz.; blackberry-root, 1 oz.: leptandra root, 1 oz. Mix, and make three pints of strong decoction. Dose, a teaspoonful every hour. Suitable for a gargle.

348. Sugar of lead, 24 grs.; vinegar, 1 dram; syrup of poppies, 1 oz.; rose-water, 3 ozs.; soft water, 4 ozs. Mix. Dose, one or two tablespoonfuls.

349. Potassio-tartrate of iron, $\frac{1}{2}$ oz.; syrup of orange-peel, 1 oz.; water, 4 oz. Mix. Take two teaspoonfuls three times a day.

350. Geranium, golden seal, marshmallow, wild-indigo root, rosemary, each half an ounce. Mix, and make one pint of strong infusion. After straining, add two drams powdered borax and one gill of honey. An excellent astringent gargle.

351. Bromide of soda, 3 drams; syrup of orange, or any other syrup, three ounces. Take one teaspoonful in water as often as needed. For headache, nervousness, etc., can take every half-hour.

352. Wine of ipecac, 10 drops in water every half-hour to croupy child, one year old; 30 drops to vomit the child.

353. Hydrochlorate of ammonia, $\frac{1}{2}$ oz.; diluted acetic acid, $\frac{1}{2}$ oz.; alcohol, $\frac{1}{2}$ oz.; camphorated mixture, 15 ozs. Mix. A good scattering wash for hydrocele, etc.

354. Chloride of soda, nitrate of potash, and hydrochlorate of ammonia, equal parts, and water enough to dissolve them. Mix. An excellent freezing mixture.

355. Antipyrin, 3 drams; syrup or water, 2 ozs. Teaspoonful every hour till fever is less; or phenacetine, 8 grs., every two hours till fever is subdued, then once in four hours.

356. Chloral hydrate, 4 drams; syrup acacia and syrup checkerberry, of each, 1 oz.; Teaspoonful in water every hour till asleep. If the taste is very objectionable it may be taken in two teaspoonful doses by rectum in a little cold starch-water.

357. Bromidia; teaspoonful in water every hour till asleep.

358. Jaborandi, fluid extract, 3 drams; syrup, 1 oz. Teaspoonful every hour, to produce sweating.

359. Pill, compound cathartic. Two for a dose.

360. "Green Soap." Rub well in at night and wash off in the morning with water.

361. Powdered camphor and chloral, equal parts, sufficient quantity to make a liniment, rubbed well together. External use.

362. Wilkinson's Ointment. (See Scabies.)

363. Dilute hydrocyanic acid, 1 dram; solution acetate of ammonia, 2 ozs.; tincture digitalis, 3 drams; rose-water, 5 ozs. For pruritus, itching, etc.

364. Corrosive sublimate, 2 grs.; tincture benzoin, $\frac{1}{2}$ dram; almond emulsion, 1 oz. Used to destroy the epidermis in cases of freckles, acne, pimples, etc.

365. Alum, 5 parts; salicylic acid, 45 parts. Dust on freely.

366. Corrosive sublimate, 4 grs.; dissolved in 1 oz. tincture of myrrh. Paint on to the part affected by ringworm night and morning.

367. Bromide of soda and ammonia, 20 grs. each, in a cup of valerian tea four times a day. Increase up to 8 or 10 times a day if former dose proves insufficient. Take also daily oxide of zinc and extract of belladonna, of each $\frac{1}{2}$ gr, morning and night. In bad cases use pill 4 times daily.

368. Fluid extract gelseminum, 3 drops in water every half hour for 3 or four times. Useful in facial neuralgia; or exalgine, 4 g.s. every hour for two or three times.

369. Atropia, $\frac{1}{100}$ of a gr. One such pill each night for sweating; one such pill 2 or 3 times a day for acute cold in head, with watery secretions; or pill "coryza," one every half hour for three times, then once an hour till throat is dry, afterwards once in three or four hours.

370. Sulphate quinine, $\frac{1}{2}$ gr.; ext. belladonna, $\frac{1}{40}$ gr.; pulv. ipecac, $\frac{1}{10}$ gr.; comp. ipecac powder, $\frac{1}{10}$ gr. One such pill every two hours, for chronic bronchitis and emphysema.

371. Carron oil. Made by adding equal parts linseed-oil and lime-water. For burns, apply freely; also boracic acid, 18 grs., dissolved in 1 dram hot glycerin and olive-oil, 1 oz.

372. Camphor, 8 grs.; carbolic acid, 8 grs.; starch, 2 drams; oxide of zinc, 2 drams; vaseline, $\frac{1}{2}$ ounce. Make an ointment.

373. Carbolic acid, 20 drops; calamine, 1 dram; glycerine, $\frac{1}{2}$ dram; water, 6 ounces. Make a lotion.

374. Fuller's earth, Comfort Powder, Talcum Powder and similar preparations are excellent for the ordinary superficial variety of acute eczema. Particularly useful on chafing and oozing surfaces.

375. Salicylic acid, 30 grs.; green soap, 1 dram; vaseline, 1 ounce. Mix and make ointment. To be applied twice daily. This ointment may be gradually increased in strength till the desired effect is produced. It should thin out the thickened, scaly skin. If too much redness or other irritation is produced, stop ointment for a day or two and use vaseline.

Dictionary of Drugs and Medicines

GIVING THEIR

LATIN AND ENGLISH NAMES.



ANY honest druggist will tell you that more than half the prescriptions given by physicians are simple remedies, but are written in Latin to mystify their patrons, for which they are in many cases charged exorbitant prices and are kept in ignorance of the effect the medicine will have upon the body. We therefore give the following Latin and English name of all the principal drugs, that you may easily read and understand the doctor's prescription.

<i>Latin.</i>	<i>English.</i>
Amygdalus Communis,	Almonds.
Alumen,	Alum.
Ampelopsis Quinquefolia,	American Ivy.
Arnica Montana,	Arnica.
Alpinia Cardamomum,	Cardamom.
Anthemis Nobilis,	Chamomile.
Atropa Belladonna,	Deadly Nightshade.
Aralia Hispida,	Dwarf Elder.
Allium Sativum,	Garlic.
Apocynum Cannabinum,	Indian Hemp.
Arum Triphyllum,	Indian Turnip.
Aqua Calcis,	Lime Water.
Aspidium Filix Mas,	Male Fern.
Althœa Officinalis,	Marshmallow.
Aconite,	Monkshood.
Argenti Nitras,	Nitrate of Silver.
Allium Cepa,	Onion.
Aurantii Cortex,	Orange Peel.
Amygdalus Persica,	Peach.
Aralia Spinosa,	Prickly Elder.
Anagallis Arvensis,	Red Chickweed.

<i>Latin.</i>	<i>English.</i>
Aletris Farinosa,	Star Grass.
Acorus Calamus,	Sweet Flag.
Alnus Rubra,	Tag Alder.
Acetum,	Vinegar.
Asarum Canadense,	Wild Ginger.
Artemisia Absinthium,	Wormwood.
Achillea Millefolium,	Yarrow.
Berberis Vulgaris,	Barberry.
Barosma Crenata,	Buchu.
Baptisia Tinctoria,	Wild Indigo.
Cimicifuga Racemosa,	Black Cohosh.
Caulophyllum Thalictroides,	Blue Cohosh.
Canella Alba,	Canella.
Carium Carui,	Caraway
Castoreum,	Castor.
Capsicum Annuum,	Cayenne Pepper.
Carbo Ligni,	Charcoal.
Chloroformum,	Chloroform.
Caryophyllus Aromaticus,	Cloves.
Coccus Cacti,	Cochineal.
Cuprum,	Copper.
Cupri Sulphas,	Sulphate of Copper.
Creosotum,	Creosote.
Cubebæ,	Cubebs.
Cornus Florida,	Dogwood.
Cochlearia Armoracia,	Horseradish.
Cetraria Islandica,	Iceland Moss.
Cypripedium Pubescens,	Ladies' Slipper.
Citrus Limonum,	Lemon.
Calx,	Lime.
Calx Chlorinata,	Chloride of Lime.
Colchicum Autumnale,	Meadow Saffron.
Cinchona,	Peruvian Bark.
Conium Maculatum,	Poison Hemlock.
Crocus Sativus,	Saffron.
Cassia Acutifolia,	Senna.
Cantharis Vesicatoria,	Spanish Flies.
Cetaceum,	Spermaceti.
Comptonia Asplenifolia,	Sweet Fern.
Corydalis Formosa,	Turkey Corn.
Chenopodium Anthelminticum	Wormseed.
Cerevisiæ Fermentum,	Yeast.
Cypripedium Pubescens,	Yellow Ladies Slipper.
Digitalis Purpurea,	Foxglove.
Diospyros Virginiana,	Persimmon.
Dioscorea Villosa,	Wild Yam.

<i>Latin.</i>	<i>English.</i>
Epigiœa Repens,	Trailing Arbutus.
Fel Bovinum,	Beefs' Galls.
Ferri Citras,	Citrate of Iron.
Ferrum,	Iron.
Ferri Phosphas,	Phosphate of Iron.
Ferri Sulphas,	Sulphate of Iron.
Ferri et Potassœ Tartras,	Tartrate of Iron and Potassa.
Gossypium Herbaceum,	Cotton.
Geranium Maculatum,	Cranesbill.
Gentiana Lutea,	Gentian.
Glycyrrhiza Glabra,	Liquorice.
Gaultheria Procumbens,	Wintergreen.
Hydrargyri Pilulœ,	Blue Pill.
Hydrargyri Chloridum Mite,	Calomel.
Hyoscyamus Uiger,	Henbane.
Humulus Lupulus,	Hops.
Hydrangea Arborescens,	Hydrangea.
Hyssopus Officinales,	Hyssop.
Hepatica Americana,	Liverwort.
Hoematoxylon Campechianum,	Logwood.
Hedroma Pulegioides,	Pennyroyal.
Helianthus Annuus,	Sunflower.
Hamamelis Virginica,	Witch Hazel.
Iris Versicolor,	Blue Flag.
Iodium,	Iodine.
Ichthyocolla,	Isinglass.
Ipomoea Jalapa,	Jalap.
Juglans Cinerea,	Butternut.
Juniperis Communis,	Juniper.
Juniperus Sabina,	Savin.
Janipha Manihot,	Tapioca.
Kalmia Latifolia,	Mountain Laurel.
Liquor Ammonicœ,	Water of Ammonia.
Liquor Ammonicœ Acetates,	Solution of Acetate of Ammonia.
Lappa Minor,	Burdock.
Linum Usitatissimum,	Flaxseed.
Lactuca Sativa,	Lettuce.
Lobelia Inflata,	Lobelia.
Leonurus Cardiaca,	Motherwort.
Liquor Potassœ,	Solution of Potassa.
Laurus Sassafras,	Sassafras.
Liquidamber Styraciflua,	Sweet Gum.
Liriodendron Tulipifera,	Tulip Tree.
Melissa Officinales,	Balm.
Myrica Cerifera,	Bayberry.
Marubium Vulgare,	Horehound.

<i>Latin.</i>	<i>English.</i>
Monarda Punctata,	Horsemint.
Monotropa Uniflora,	Ice-plant.
Magnesia Usia,	Magnesia.
Magnesia Sulphas,	Sulphate of Magnesia.
Myristica Moschata,	Nutmeg.
Mentha Piperita,	Peppermint.
Mentha Viridis,	Spearmint.
Momordica Elaterium,	Wild Cucumber.
Nepeta Cataria,	Catnip.
Nepeta Glechoma,	Ground Ivy.
Nicotiana Tabacum,	Tobacco.
Nymphœa Odorata,	White Pond-Lily.
Oleum Tiglii,	Croton Oil.
Oleum Ricini,	Castor Oil.
Oleum Morrhuœ,	Cod-Liver Oil.
Oleum Terebinthinœ,	Oil of Turpentine.
Oleum Olivœ,	Olive Oil.
Pimpinella Anisum,	Anise.
Populus Candicans,	Balm of Gilead.
Prinos Verticillatus,	Black Alder.
Potassii Iodidum,	Iodide of Potassium.
Plumbum,	Lead.
Podophyllum Peltatum,	Mandrake.
Potassœ Nitras,	Nitre.
Petroselinum Sativum,	Parsley.
Plantago Major,	Plantain.
Phytobacca Decandra,	Poke.
Potassœ Bicarbonas,	Bicarbonate of Potassa.
Potassii Bromidum,	Bromide of Potassium.
Picroœna Excelsa,	Quassia.
Polygala Senega,	Seneka.
Pix Liquida,	Tar.
Polygonum Punctatum,	Water Pepper.
Prunus Virginiana,	Wild Cherry.
Petrolatum,	Vaseline.
Rubus Villosus,	Blackberry.
Rhamnus Catharticus,	Buckthorn.
Rhus Toxicodendron,	Poison Oak.
Rosa Gallica,	Red Rose.
Rheum Palmatum,	Rhubarb.
Rosemarinus Officinales,	Rosemary.
Ruta Graveolens,	Rue.
Rhus Glabrum,	Sumach.
Rumex Crispus,	Yellow Dock.
Sal Ammoniac,	Muriate of Ammonia.
Solanum Dulcamara,	Bittersweet.

<i>Latin.</i>	<i>English.</i>
Sanguinaria Canadensis,	Bloodroot.
Sambucus Canadensis,	Elder.
Solidago Rigida,	Hardleaf Goldenrod.
Sempervivum Tectorum,	Houseleek.
Senecio Aureus,	Liferoot.
Statice Caroliniana,	Marshrosemary.
Spiritus Aetheris Nitrici,	Sweet Spirits of Nitre.
Strychnos Nux Vomica,	Nux Vomica.
Spigelia Marilandica,	Pink-Root.
Stillingia Sylvatica,	Queens-Root.
Salvia Officina'es,	Sage.
Smilax Officinales,	Sarsaparilla.
Scutellaria Lateriflora,	Skullcap.
Symplocarpus Fœtidus,	Skunk Cabbage.
Sapo,	Soap.
Sodæ Bicarbonas,	Bicarbonate of Soda.
Sodæ Boras,	Borate of Soda.
Sodæ Sulphis,	Sulphite of Soda.
Spongia,	Sponge.
Secale Cornutum,	Spurred Rye
Scilla Maritima,	Squill.
Styrax Officinale,	Storax.
Salix Alba,	Willow.
Trillium Pendulum,	Bethroot.
Tussilago Farfara,	Coltsfoot.
Taraxacum Dens Leonis,	Dandelion.
Trifolium Pratense,	Red Clover.
Tela Araneæ,	Spider's Web.
Tanacetum Vulgare,	Tansy.
Uva Ursi,	Bearberry.
Ulmus Fulva,	Slippery Elm.
Veratrum Viride,	American Hellebore.
Viburnum Opulus,	High Cranberry.
Verbascum Thapsus,	Mullein.
Valeriana Officinales,	Valerian.
Veratrum Album,	White Hellebore.
Xanthoxylum Fraxineum,	Prickly Ash.
Zinci Chloridum,	Chloride of Zinc.
Zinci Sulphas,	Sulphate of Zinc.
Zingiber Officinale,	Ginger.

SIMPLE HOME REMEDIES

IN LATIN AND ENGLISH



℥ = one drachm = one teaspoonful.

℥ = one ounce = two tablespoonfuls = $\begin{cases} 8 \text{ teaspoonfuls or} \\ 4 \text{ dessertspoonfuls.} \end{cases}$

m = one minim = one drop.

gr = one grain = same.

ASTHMA.

<i>R̄</i>	<i>Latin.</i>		<i>English.</i>
Potass. Iodidi,		℥ii	Iodide of Potassium, 2 teaspoonfuls
Sodii Bromidi,		℥iii	Bromide of Sodium, 3 teaspoonfuls
Tr. Belladonnæ,		℥ii	Tincture of Belladonna, 2 teaspoonfuls
Spts. Etheris Compositos,		℥v	Compound spirits of ether, 5 teaspoonfuls
Syrupus Simplicis,		℥iv	Simple syrup, 8 tablespoonfuls
Sig. One teaspoonful in little water four times a day.			

APPENDICITIS.

<i>R̄</i>			
Morphinæ Sulph.,	gr. ii	Morphine,	2 grains
Tr. Camphoræ,	℥ii	Tincture of Camphor,	2 teaspoonfuls
Syr. Zingiberis,	℥iii	Syrup of Ginger,	6 tablespoonfuls
Sig. Teaspoonful in little water every two hours until pain is relieved.			

BARBER'S ITCH.

<i>R̄</i>			
Ichthyolis,	℥iii	Ichthyol,	3 teaspoonfuls
Sulphuræ,	℥ii	Washed Sulphur,	2 teaspoonfuls
Unguenti Zin. Oxidi,	℥ii	Oxide of Zinc ointment,	2 ounces
Keep parts greased constantly with ointment.			

BUNION.

<i>R_x</i>	<i>Latin.</i>		<i>English.</i>	
	Acidi Salicylici,	gr. x	Salicylic acid,	10 grains
	Tr. Opii Deod,	℥ii	Laudanum,	2 teaspoonfuls
	Lanolini	℥i	Lanoline,	1 ounce

Apply to joint and cover with cloth.

BRONCHITIS (*Acute*).

<i>R_x</i>	Ammonii Chloridi,	℥ii	Chloride of Ammonium,	2 teaspoonfuls
	Tr. Hyoscyamus,	℥iii	Tincture of Hyoscyamus,	3 teaspoonfuls
	Elixir Terpini Hydrat,	℥iii	Elixir of Terpin Hydrate,	3 ounces

Teaspoonful in water every three hours.

BRONCHITIS (*Chronic*).

<i>R_x</i>	Potass. Iodidi,	℥ii	Iodide of Potassium,	2 drachms
	Eucalyptol,	℥i	Eucalyptol,	1 drachm
	Syr. Tolutani,	℥ii	Syrup of Tolu,	2 ounces
	Syr. Pruni Virg,	℥ii	Syrup of Wild Cherry,	2 ounces

Teaspoonful in water 4 times a day.

BRIGHT'S DISEASE.

<i>R_x</i>	Potass. Citratis,	℥iii	Citrate of Potash,	3 drachms
	Potass. Acetatis,	℥i	Acetate of Potash,	1 drachm
	Spts. Aetheris Nitrosi,	℥i	Sweet Spirits of Nitre,	1 ounce
	Aquæ Dist.,	℥iii	Distilled water,	3 ounces

Teaspoonful in water 4 times a day.

BILIOUSNESS.

<i>R_x</i>	Acidi Hydrochlorici <i>Dil.</i> ,	℥iii	Dilute Hydrochloric Acid,	3 drachms
	Tr. Nucis Vomicae,	℥iii	Tincture of Nux Vomica,	3 drachms
	Essence Pepsini,	℥iii	Essence of Pepsin,	3 ounces

Teaspoonful in water after meals.

BOILS.

<i>R_x</i>	Ichthyolis,	℥ii	Ichthyol,	2 drachms
	Unguenti Acidi Boracici,	℥i	Boracic Acid ointment,	1 ounce

Apply frequently.

CARBUNCLE.

Hot flaxseed poultices until opened, then prescription recommended for boils.

CHOLERA MORBUS.

<i>R_x</i>	<i>Latin.</i>		<i>English.</i>	
	Acidi Tannici,	gr. xx	Tannin,	20 grains
	Acacia,	℥i	Gum Arabic,	1 ounce
	Tr. Opii Deod,	gtts. xxx	Laudanum,	30 drops
	Aquæ,	Oii	Water,	1 quart
	Warm and use as a rectal injection; repeat every 2 or 3 hours if needed.			

CATARRH.

<i>R_x</i>	Mentholis,	gr. vi	Menthol,	6 grains
	Camphoræ,	gr. vi	Camphor,	6 grains
	Albolene,	℥i	Albolene,	1 ounce
	Use frequently. Spray nose with atomizer.			

COLIC (*Bilious*).

<i>R_x</i>	Aquæ Camphoræ,	℥i	Camphor Water,	1 ounce
	Spts. Etheris Comp.,	℥v	Compound spirits of ether,	5 drachms
	Morphinæ Sulph.,	gr. ii	Morphine,	2 grains
	Syr. Zingiberis,	℥ii	Syrup of Ginger,	2 ounces
	Teaspoonful every hour or two until pain is relieved.			

COLIC (*Wind*).

<i>R_x</i>	Aquæ Camphoræ,	℥i	Camphor water,	1 ounce
	Spts. Chloroformi,	℥i	Spirits of Chloroform,	1 ounce
	Tr. Cardamomi Comp.,	℥iii	Compound tincture of Cardamom,	3 ounces
	Teaspoonful in water every half hour or so until better.			

CHOLERA INFANTUM.

<i>R_x</i>	Bismuthi Subgall,	℥iii	Subgallate of Bismuth,	3 drachms
	Salolis,	gr. xx	Salol,	20 grains
	Tr. Opii Camphoræ,	℥ii	Paregoric,	2 drachms
	Aquæ Camphoræ,	℥iii	Camphor Water,	3 ounces
	Twenty to thirty drops in little water every 2 hours.			

CONSTIPATION.

<i>R_x</i>	Ext. Cascaræ Sagradæ Fl.	℥iii	Fluid extract of Cascara Sagrada,	3 ounces
	Twenty drops to one teaspoonful in water at bedtime.			

CROUP (*Simple*).

<i>R_x</i>	<i>Latin.</i>		<i>English.</i>	
	Potass. Bromidi,	℥ii	Bromide of Potassium,	2 drachms
	Tr. Belladonna,	℥f̄s	Tincture of Belladonna,	½ drachm
	Syr. Aurantii,	℥i	Syrup of Orange,	1 ounce
	Aquæ Distill.	ad ℥iv	Distilled water to make	4 ounces
Teaspoonful every hour until breathing is easier				

CROUP (*Membranous*).

<i>R_x</i>	Hydrargyri Chloridi Mite,	℥ii	Calomel,	2 drachms
Vaporize a quantity that can be scooped upon a ten cent piece by heating in an iron spoon or plate. Confine fumes to child's crib by making tent of large sheet.				

CANKER.

<i>R_x</i>	Potass. Chloratis,	gr. xxx	Chlorate of Potash,	30 grains
	Tr. Myrrhæ,	mxxx	Tincture of Myrrh,	30 drops
	Tr. Gentianæ,	℥iii	Tincture of Gentian,	3 ounces
Teaspoonful in water every 3 hours.				

CHILBLAINS.

<i>R_x</i>	Acidi Tannici,	gr. xxx	Tannin,	30 grains
	Ichthyolis,	℥i	Ichthyol,	1 drachm
	Unguenti Simplicis,	℥v	Simple ointment,	5 drachms
Keep tender points covered with ointment.				

DIARRHŒA.

<i>R_x</i>	Bismuthi Subnitratis,	℥iii	Subnitrate of Bismuth,	3 drachms
	Tr. Catechu,	℥vi	Tincture of Catechu,	6 drachms
	Tr. Opii Deod.,	℥ii	Deodorized tincture of opium,	2 drachms
	Mist. Cretæ Comp.,	℥iii	Compound chalk mixture,	3 ounces
Use carefully.				
Sig. Teaspoonful in water every 3 hours.				

DIPHTHERIA.

<i>R_x</i>	(See description of disease for use of antitoxin).			
	Acidi Sulphurousi,	℥i	Sulphurous acid,	1 ounce
	Syrupi Simplicis,	℥ii	Simple syrup,	2 ounces
Sig. Teaspoonful in ¼ glass of water every two or three hours.				
<i>Caution.</i> —Sulphurous acid is <i>not</i> sulphuric acid.				

DYSPEPSIA.

<i>R_x</i>	<i>Latin.</i>		<i>English.</i>	
	Carbo Ligni,	℥iii	Wood charcoal,	3 drachms
	Bismuthi Subnitratis,	℥iii	Subnitrate of Bismuth,	3 drachms
	Salolis,	℥fs	Salol,	30 grains
	Divide in chart No. xii.		Divide in 12 powders.	
	Sig. One powder on tongue followed by water at mealtime.			

DYSPEPSIA (*Gastric*).

<i>R_x</i>	Acidi Hydrochlorici <i>Dil.</i> ,	℥ii	Dilute Hydrochloric Acid,	2 drachms
	Elixir Lactopeptini,	℥iii	Elixir of Lactopeptine,	3 ounces
	Sig. Teaspoonful in water at mealtime.			

DYSPEPSIA (*Nervous*).

<i>R_x</i>	Sodii Bromidi,	℥iii	Bromide of Sodii,	3 drachms
	Tr. Nucis Vomicae,	℥iii	Tincture of Nucis Vomica,	3 drachms
	Aquæ Dist.,	℥iii	Distilled Water,	3 ounces
	Sig. Teaspoonful in little water after meals.			

ECZEMA.

<i>R_x</i>	Ung. Zinci Oxidi,		Zinc Oxide Ointment,	½ ounce
	Ung. Acidi Boracic,	aa ℥ ℥s	Boracic Acid Ointment,	½ ounce
	Sig. Keep parts covered with ointment.			

ERYSIPELAS.

<i>R_x</i>	Ichthyolis,	℥i	Ichthyol.	1 drachm
	Vaselini,	℥i	Vaseline,	1 ounce
	Sig. Spread cloth with ointment to cover area slightly larger than inflammation.			

EPILEPSY.

<i>R_x</i>	Sodii Bromidi,	℥vi	Bromide of Sodium,	6 drachms
	Aquæ Distill.,	℥iv	Distilled water,	4 ounces
	Sig. Teaspoonful in ¼ glass of water four or five times a day.			

EARACHE.

<i>R_x</i>	Ol. Olivæ,	℥ii	Olive or sweet oil,	2 drachms
	Tr. Opii Deod.,	℥i	Laudanum,	1 drachm
	Sig. Warm five or six drops in spoon and place in canal of ear.			

FEVER (*Typhoid*).

<i>R_x</i>	<i>Latin.</i>		<i>English.</i>	
	Salolis	℥̄ss	Salol,	30 grains
	Bismuthi Subnitratis,	℥ii	Subnitrate of Bismuth,	2 drachms
	Aquæ Menth. Pip.,	℥iv	Peppermint water,	4 ounces
	Sig. Shake well. Dessertspoonful in water every 4 hours.			

FEVER (*Malarial*).

<i>R_x</i>	Quiniæ Bisulph.,	℥i	Bisulphate of Quinine,	1 drachm
	Divide in chart No. xii.		Divide in 12 powders.	
	Sig. One powder with water 4 times a day.			

GOUT.

<i>R_x</i>	Vini Colchici,	℥iii	Colchicum wine,	3 drachms
	Potass. Iodidi,	℥iii	Iodide of Potassium,	3 drachms
	Aquæ Dist.,	℥iii	Water,	3 ounces
	Sig. Teaspoonful in water four times a day.			

HYDROPHOBIA.

<i>R_x</i>	Solution Hydrargyri Chloridi	Sol. of Bichloride of Mercury	
	Corrosivi (1 to 1000),	Oi (1-1000)	1 pint
	Sig. Wash wound with solution after cauterizing with lunar caustics.		

HAY FEVER.

<i>R_x</i>	Potass. Iodidi,	℥i	Iodide of Potash,	1 drachm
	Tr. Hyoscyamus,	℥i	Tincture of Hyoscyamus,	1 drachm
	Aquæ Menth. Pip.,	℥iii	Peppermint water,	3 ounces
	Sig. Teaspoonful in water four or five times a day.			

HEART BURN.

<i>R_x</i>	Sodæ Bicarb,	℥̄ss	Bicarbonate of Soda,	$\frac{1}{2}$ ounce
	Ft. chart (sample)	gr. x.	A sample powder of	10 grains.
	Sig. Quantity equal to sample after meals.			

HYSTERIA.

<i>R_x</i>	Sodii Bromidi,	℥iii	Bromide of Soda,	3 drachms
	Tr. Valerianæ,	℥ii	Tincture of Valerian,	2 drachms
	Tr. Gentianæ,	℥iii.	Tincture of Gentian,	3 ounces
	Sig. Teaspoonful in water. Repeat half hourly if needed.			

INFLUENZA AND GRIPPE.

<i>R</i>	<i>Latin.</i>		<i>English.</i>	
	Phenacetini,	gr. v	Phenacetin,	5 grains
	Salolis,	gr. ii	Salol,	2 grains
	Quininæ Bisulph.,	gr. ii	Quinine,	2 grains
	Ft. Chart. No. i. Dispense tales		Make one powder of above. Dis-	
	No. x.		pense ten powders like sample.	
	Sig. One powder every four hours until relieved.			

JAUNDICE.

<i>R</i>	Tablet Fel Bovis Comp.	Tablets of Compound Ox Gall.
	Dispense No. xxx.	Dispense Number 30.
	Sig. One tablet after meals.	

LEUCORRHEA.

<i>R</i>	Pulv. Alumini,	℥iii	Alum powder,	3 ounces
	Plumbi Acetatis,	℥i℥ss	Acetate of lead,	1½ ounces
	Sodii Boratis,	℥ii	Borax,	2 drachms
	Sig. Two teaspoonfuls added to a quart of water to be used externally as an injection.			

MEASLES.

<i>R</i>	Tr. Aconiti,	mxv	Tincture of Aconite,	15 drops
	Spts. Aetheris Nitrosi,	℥i	Sweet Spirits of Nitre,	1 ounce
	Elix. Simplicis,	ad ℥iv	Simple Elixir,	3 ounces
	Sig. Teaspoonful in water four times a day.			

MENSES (Absence of), AMENORRHŒA.

<i>R</i>	Tr. Ferri Chloridi,		Tincture of Chloride of Iron,	
				4 drachms
	Tr. Aloes,		Tincture of Aloes,	4 drachms
	Tr. Nucis Vomicae,	aa ℥iv	Tincture of Nux Vomica,	
				4 drachms
	Syr. Rhei Aromatici,	℥iv	Aromatic Syrup of Rhubarb,	
				4 ounces
	Sig. Teaspoonful in water four times a day.			

MENSTRUATION (Painful), DYSMENORRHŒA.

<i>R</i>	Tablets Migraine,	Migrain tablets.
	Dispense No. xxx.	Dispense thirty.
	Sig. One tablet, repeat in 30 minutes, then every 3 hours if needed for pain.	

MENSTRUATION (*Profuse*), **MENORRHAGIA.**

<i>R</i>	<i>Latin.</i>	<i>English.</i>
	Pil. Ergotin (Bonjean), aa gr. i	Ergotin pills, 1 grain each
	Dispense No. xxiv.	Dispense twenty-four.
	Sig. One pill four times a day.	

MUMPS.

<i>R</i>	Tr. Ferri Chloridi,	℥iii	Tr. Chloride of Iron,	3 drachms
	Glycerini,	℥iv	Glycerine,	4 drachms
	Aquæ Dist.,	℥iii	Distilled water,	3 ounces
	Sig. Teaspoonful in water through a glass tube three times a day.			

NETTLE RASH (*Urticaria*).

<i>R</i>	Sol. Acid Carbolici, 5%,	℥ii	5% sol. Carbolic Acid,	2 ounces
	Chloral Hydrate,	gr. xxx	Chloral Hydrate,	30 grains
	Aquæ Calcis,	℥ss	Lime Water,	½ pint
	Sig. Use externally as a wash.			

NEURALGIA.

<i>R</i>	Pulv. Phenacetine,	gr. v	Phenacetin,	5 grains
	Sodii Bromidi,	gr. x	Bromide of Sodium,	10 grains
	Sig. This quantity every two or three hours.			

PLEURISY.

<i>R</i>	Tr. Iodini,	℥ss	Tincture of Iodine.
	Use externally.		External use.
	Sig. Apply to painful area with camel's hair brush.		

PILES (*Hemorrhoids*).

<i>R</i>	Ung. Gall et Opii,	℥i	Gall and Opium ointment,	1 ounce
	Sig. Apply after bathing parts in cold water.			

PYEMIA.

<i>R</i>	Pil. Strychnia Sulph,	aa gr. 1-40	Pill of Sulphate of Strychnine,	1-40 grain
	Sig. One pill four times a day.			
	Pil. Quinim Sulph,	aa gr. ii	2-grain Quinine pills.	
	Sig. One pill three times a day.			

RHEUMATISM (*Acute*).

<p>R <i>Latin.</i> Tablet Sodii Salicylatis, aa gr. v Dispense No. xxx. Sig. Two pills with water three or four times a day.</p>	<p><i>English.</i> Salicylate of Sodium tablets, 5 grains each</p>
--	--

RHEUMATISM (*Chronic*).

<p>Potass. Iodidi, Sodii Salicylatis, Syr. Sarsaparilla Comp,</p>	<p>℥ii Iodide of Potash, ℥iv Salicylate of Sodium, ℥iv Compound syrup of Sarsaparilla,</p>	<p>2 drachms 4 drachms 4 ounces</p>
---	--	---

Sig. Teaspoonful in water after meals and at bedtime.

SHINGLES.

<p>R Tr. Opii Deod., Ichthyolis, Lanolini,</p>	<p>℥ii Laudanum, ℥ii Ichthyol, ℥i Lanoline,</p>	<p>2 drachms 2 drachms 1 ounce</p>
---	---	--

Sig. Apply to affected parts.

SCIATICA.

<p>R Tr. Aconiti, Linimenti Chloroformi, Linimenti Saponis,</p>	<p>℥i Tincture of Aconite, ℥ii Chloroform Liniment, ℥i Soap Liniment,</p>	<p>1 drachm 2 ounces 1 ounce</p>
--	---	--

Mark "Poison."

Sig. Poison. Apply externally as a liniment.

SCROFULA.

<p>R Syr. Ferri Iodidi,</p>	<p>℥ii Syrup of the Iodide of Iron,</p>	<p>2 ounces</p>
--	---	-----------------

Sig. Five drops in water after meals.

TONSILLITIS.

<p>R Sol. Hydrogenii Peroxidi,</p>	<p>℥iii Peroxide of Hydrogen,</p>	<p>3 ounces</p>
---	-----------------------------------	-----------------

Sig. Dilute one teaspoonful with two or three of water and use frequently as a gargle.

TOOTHACHE.

<p>R Collodii Flex, Acidi Carbolici C. P., aa gtts. iv</p>	<p>Collodion. Pure Carbolic Acid.</p>
--	--

Mix three or four drops of each together.
 Sig. Apply to cavity of tooth.

WATER BRASH.

<i>R</i>	<i>Latin.</i>		<i>English.</i>	
	Sodii Salicylatis,	℥iii	Salicylate of Sodium	3 drachms
	Sodii Bicarbonatis,	℥iii	Bicarbonate of Soda,	3 drachms
	Aquæ. Menth. Pip.,	℥iii	Peppermint water,	3 ounces
	Sig. Teaspoonful in water after meals.			

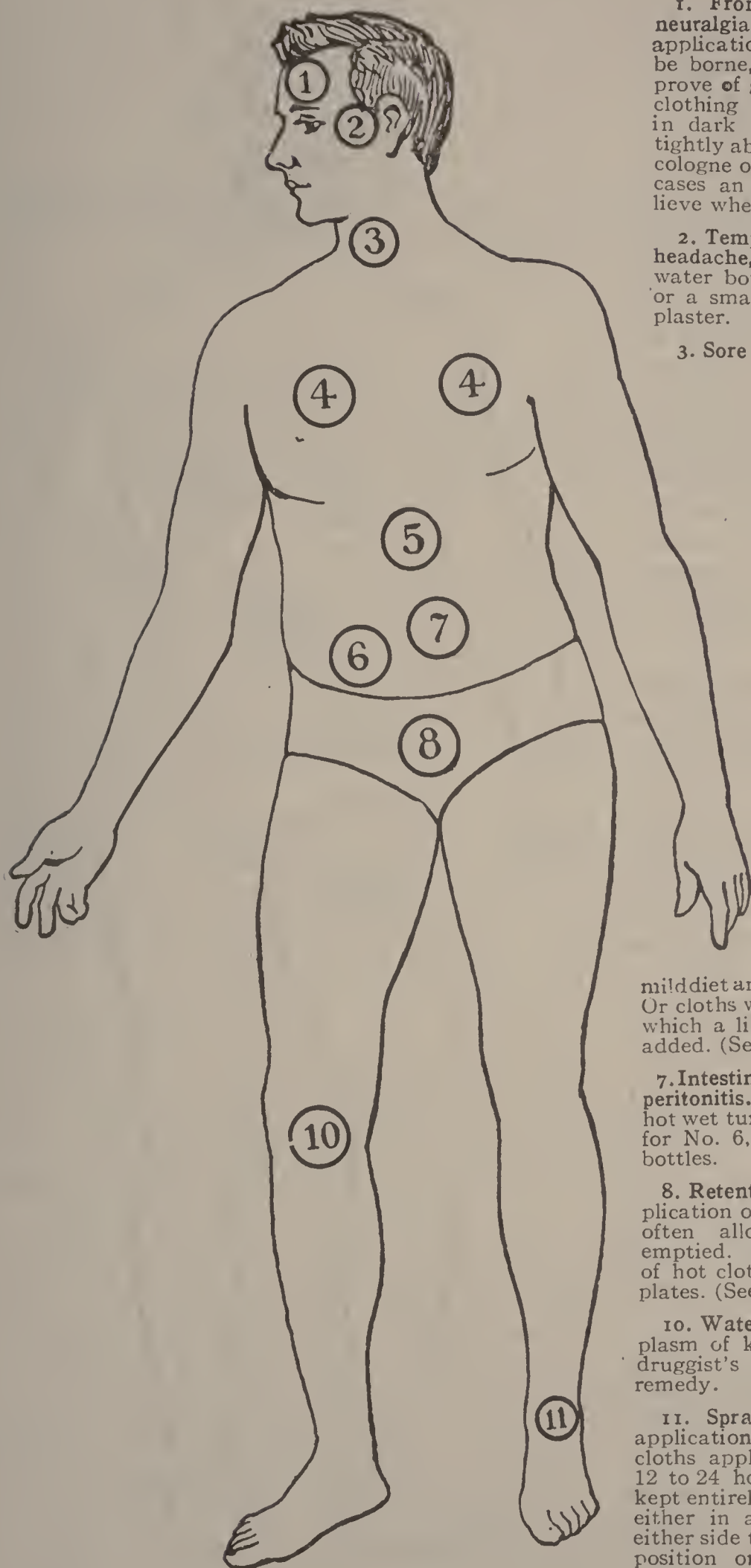
WORMS.

<i>R</i>				
	Pulv. Santonin,	gr. ii	Santonin,	2 grains
	Hydrargyri Chlor. Mite,	gr. iii	Calomel,	3 grains
	Ft. chart. No. i. Make one powder.			
	Sig. Give half the powder for child under five and follow with dose of castor oil.			

WHOOPIING COUGH.

<i>R</i>				
	Tr. Belladonnæ,	℥i	Tincture of Belladonna,	1 drachm
	Sodii Bromidi,	℥ii	Bromide of Sodium,	2 drachms
	Syr. Tolutani,	℥iii	Syrup of Tolu,	3 ounces
	Sig. One teaspoonful in water every 3 or 4 hours.			





1. Frontal headache, eye-strain, neuralgia, nervous headache. — The application of cloths as hot as can be borne, changing frequently, will prove of great service. Loosen the clothing about the neck, lie down in dark room. Or tie a bandage tightly about the forehead wet with cologne or camphor water. In some cases an ice bag or cold cloths relieve where warmth fails.

2. Temporal headache, congestive headache, earache. — Apply hot water bottle or hot hop or salt bag or a small size mitigated mustard plaster.

3. Sore throat, laryngitis, croup. — Wrap throat with cloth wrung out of very hot water (careful not to burn patient) and cover with large dry towel or flannel cloth. This is to steam throat.

4. Pneumonia, bronchitis, lung fever or congestion. — Large, hot flaxseed poultices applied constantly and changed when cold. When discontinued wipe dry and apply hot dry flannel to prevent taking cold. (See index.)

5. Colic or gastritis. — Mustard poultice or plaster applied to pit of stomach in conjunction with appropriate internal treatment. (See index.)

6. Appendicitis. — Hot flaxseed poultices applied constantly to this region with very mild diet and quietness of the bowels. Or cloths wrung out of hot water to which a little turpentine has been added. (See index.)

7. Intestinal troubles, cold in bowels, peritonitis. — Hot flaxseed poultices, hot wet turpentine stupes as advised for No. 6, spice bags or hot water bottles.

8. Retention of Urine. — The application of heat at this point will often allow the bladder to be emptied. May be applied in form of hot cloths, hot water bag, or hot plates. (See index.)

10. Water on the Knee. — Cataplasm of kaolin, obtainable at any druggist's is the best and surest remedy.

11. Sprained ankle. — The first application should be cold wet cloths applied about ankle joint for 12 to 24 hours and later the joint kept entirely at rest for several days either in a pillow with splints on either side to retain the joint in one position or else the joint should be put in a plaster cast.

1. Headache, congestion of the base of the brain, occipital headache.—A hot water bottle or small mustard poultice applied to nape of neck in conjunction with hot foot baths, are efficient in these troubles.

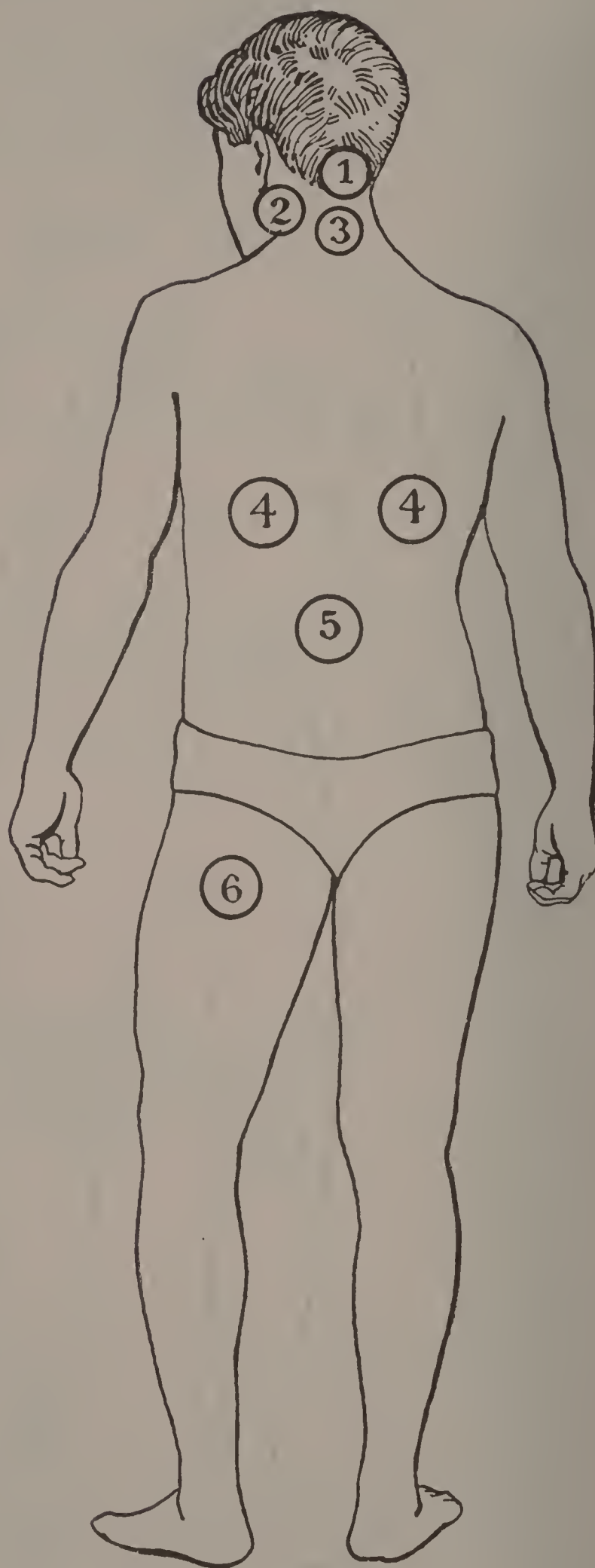
2. Stiff-neck, torticollis or wry neck.—Bathing with hot alcohol and water, or chloroform or ammonia liniments are useful applications.

3. Nose bleed (epistaxis).—Cold applications, as piece of ice or large cold key placed in position 3. Holding a wad of tissue paper between upper lip and teeth under nostril of bleeding side.

4. Pleurisy.—Paint with tincture of iodine for acute and chronic pleurisy though hot flaxseed poultices are possibly better for the very painful acute variety. Swathing the lower portion of the chest with firm bandages to prevent too deep breathing gives great relief.

5. Backache, lumbago.—Thorough massage of the back muscles in region of No. 5, using some bland and soothing oil like sweet or olive oil is excellent. Avoid irritating applications like mustard poultices but use porous plasters in their place or adhesive plaster straps.

6. Sciatica.—Painting course of sciatic nerve with tincture of iodine or the application of three or four fly blisters about three-fourths of an inch square, two or three inches apart, down the back.



PROPRIETARY AND PATENT MEDICINES.

NOTHING in the world has given rise to so much superstition and blind folly as the following of fanatic leaders in the curing of disease. Since Hippocrates, and even back to Apollo himself, if we may believe old Grecian and Roman tales, quackery in medicine has reigned supreme.

It pleases people to follow up what appears miraculous in life. Results are more important to the minds of many people than the circumstances effecting results; hence, if a person by hook or crook recovers from a disease while using some patent medicine, he ascribes to its employment some specific usefulness, irrespective of the natural course of the malady, or whatever else he may or may not have done.

In this way ancient amulets and modern patent medicines have seemed to cure cancer, leprosy, liver and kidney and other diseases; and in this way enormous fortunes have been made by advertising in gorgeous attire some specific oil or balsam, the apparent defenders of health and strength. Patent medicines are sold to make money, and not to cure the public; their usefulness is generally in inverse ratio to their labels.

There are, however, some good patent medicines. In some cases they will prove just the thing the system needs, but the risk is too great unless recommended by some physician. It is their blind, indiscriminate use that we condemn. Their formula not being known is what makes them dangerous. They usually are made up of some powerful stimulant which makes the patient feel better for a time, and then leaves the system more relaxed than ever, and hurts the nerves or digestion. We will point out a few that are useful.

There is another class of medicines which are put up by the great pharmaceutical houses, which deserve popular use. Their composition being known, there is no secrecy about them. They are prepared in the most scientific manner. These houses have a name to preserve, and have ample means to procure the services of the best chemists, and, using such large quantities of drugs, they can procure the best and most uniform. They do not claim to be cure-alls, but are compounded for special diseases or conditions, which are plainly stated, and are only claimed to be a remedy for such diseases or con-

ditions of the system. They are just what your physician would prescribe. The difficulty is in rightly choosing from the vast number.

Of late there has sprung up a class of houses who make it a custom to imitate any well-known medicine which has proved valuable, and, by selling their imitations cheaper and using some flaring label, palm off these imitations as being just as good. We would advise that they be shunned like the plague. If there is anything that ought to be pure, it is the drugs, stimulants and nourishment that we take as medicine.

While we do not claim to give a list in this chapter of all valuable remedies, we recommend several of the best and most valuable, which have stood the test of use, and can be taken with safety and benefit. Read in the front part of the book a description of your trouble, then turn to the department in this chapter corresponding to it, and choose the remedy. In all cases the directions will be found on the wrapper of the remedy.

Asthma. — Kola-Koloid (T. Metcalf Co.). The well-known integrity of this house is a sufficient guarantee of the value of this remedy. Soden's Mineral Pastilles are also good.

Anti-Fat. — Phytoline is used very extensively. Thyroid Tablets of 5 grains each 3 times a day are very effectual.

Anti-Scrofulous. — Iodia, an alterative and tonic; is much used by the best physicians. This is purely a vegetable medicine. It eliminates specific poison from the blood, which is the seat of the disease, and its tonic power gives strength to the system to throw off the disease.

Chapoteant Sol. Iodide Strontium is much used. Is very easily digested, but is rather expensive.

Syrup Trifolium Compound is a harmless remedy; is a vegetable remedy, and, taken a long time, is a very good remedy to purify the blood.

Biliousness. — Garfield Tea and Fig Syrup contain no salicylic acid, minerals or opium. Are purely vegetable remedies, and can be used by infants, children and adults with safety. India Cholagogue is an old remedy of worth.

Consumption. — Cod Liver Oil is an old and much-used remedy, not only for consumption but for all wasting diseases. It nourishes the body and builds up the tissues. The trouble is to get it pure. The pure, pale oil, extracted from the fresh, healthy livers of the fish, known as Burnett's, sold by Theo. Metcalf Co., Boston, is the most desirable. It can be emulsified with an egg-beater. The dose should rarely be over a tablespoonful and can be combined with coffee, eggs, milk or ice cream well beaten together to make it more palatable and more easily digested.

Coughs. — King's Consumption Cure is one of the best cough mixtures. Linonine is composed of flaxseed-oil combined with chloroform, and is good to soften and allay a common hard cough.

Diabetes. — Gluten Flour (Metcalf) is the best food and is free from

starch. In making the bread it should be mixed with a spoon with wheat bran. The hands should never touch the Gluten Flour. No other bread should be eaten, or potatoes or other starchy foods. If the patient gets tired of Gluten Flour alternate with Soga Bean Meal.

Digestive Medicines. — Horsford's Acid Phosphate. It promotes digestion without injury and thereby relieves the diseases caused by indigestion. It is excellent for acidity of the stomach and is a very pleasant and healthful drink combined with some syrup and soda. There are so many different causes of dyspepsia, it is often necessary to try several remedies. The following are good: Liquid Lactopeptine, Liquid Pancreaticus more especially for bowel indigestion. The various preparations of pepsin are good.

Disinfectants. — Eucaline (T. Metcalf Co.) is used around the house as a disinfectant during disease as a preventative from contagion. Diluted it makes a good tooth and mouth wash, a few drops in a tumbler of water. Is good to sweeten bowls and bath-tubs. Can be used in the water-pan of furnaces to cleanse the air and in fact where any disinfectant is used. Chloride of lime and sulpho-naphthol are also much used.

Foods, Invalid and Baby. — Mellin's Food is one of the oldest and best; it needs no cooking. Mixed with milk it contains all that is necessary to nourish the body. It is the best known baby food and is invaluable for those suffering from nervous prostration or non-assimilation of food. Malted Milk is a good food for all ages but is more particularly adapted for adult invalids. Bartlett's Food is good for nervous children. Robinson's Groats and Barley, intended for children, is a laxative food.

Headaches. — The remedies for headaches are numberless. If they are constant or chronic it is well to leave off smoking, tea or coffee drinking for three months and see if that is not the sole cause. If a female, have a physician and see if they are not caused by some womb trouble. For immediate relief a cup of black coffee without sugar or milk is as safe and good as anything. Most of the headache powders, pills, etc., are made up of caffeine, bromides, guarana and the coal-tar products.

Quinacetine (Metcalf) is one of the best remedies and has the advantage of leaving no unpleasant effects.

The following are good for immediate relief: Bromo-Caffeine, Bromo-Seltzer, Elixir Guarana, Nervease and Phenacetine. The last two should be used sparingly.

Hypnotic and Sleep-Producing Medicines. — Bromidia is much used. It is composed of chloral and the bromides. Every fluid dram contains 15 grains each of pure chloral hydrate and purified bro. pot., and $\frac{1}{8}$ grain each of gen. imp. ex. cannabis ind. and hyoscyam. In the restlessness and delirium of fevers it is invaluable. It is well to take outdoor exercise and drink a cupful of Mellin's Food, warm or malted milk just before retiring.

Iron Preparations. — Elixir Three Chlorides is a good blood-maker. Schlotterbeck's Syrup, Phospho-Chloride of Iron is a good preparation of liquid iron and easily digested.

Liquid Beef Preparations. — Beef Peptonoids, Liquid Beef Peptonoids, and Liquid Peptonoids with Creosote, are preparations of beef in a

very digestible form, palatable and very nourishing. Bovox, Bovinine and Wyeth's Beef Juice are very nourishing and are valuable for travellers and to take between meals when faint.

Liver and Kidney Medicines. — Garfield Tea is a good family medicine, is harmless, contains no minerals and clears the liver and kidney of effete matter. Buchu and Hyoscyamus Comp. ('Tyree's) to soothe an irritable bladder. In kidney troubles consult the best physicians obtainable.

Liquid Malts. — Are chiefly serviceable in inability to digest starchy foods, and in convalescence. All of the following are good: Tarrant's and Hoff's Malts, Liquid Bread, Trommer's Malt with Iodides, Trommer's Citrate of Iron and Quinine, and Trommer's Malt with Pepsin.

Laxatives. — For chronic constipation there is nothing more useful than Rhamnus Fragula (Metcalf), made from buckthorn bark. It is a simple and harmless remedy, the results good and sure, and invigorates the bowels. — Glycones (Lilly). Frequently, especially for babies and young children, it is well to move the bowels without taking medicine internally. Glycones are the best. They are in two sizes, children's and adults'. They are invaluable for travellers. They produce prompt, painless and copious stools. Garfield Tea is mild, harmless and sure. One of the best and pleasant to take, and has no nauseating effects. For babies, Garfield Fig Syrup.

Loss of Nervous Energy, and Impotency. — Sterility in both the male and female. The first thing to do is to break off at once and forever even the thoughts of what causes impotency and loss of energy. If male, bathe the parts in cold water night and morning and pay no attention to various advertisements of free remedies, etc. See chapter on Masturbation and Impotency. The best remedy for loss of energy and impotency is Kola (Metcalf). Nothing can compare with Kola Koloid. Its use by the negro in Africa has extended all over the world. It is well known that they raise the largest families and their energy in this respect can perhaps be traced to the use of Kola.

Nerve Tonics. — Coca Wine. As a stimulating tonic there is perhaps no better remedy known than Metcalf's Coca Wine. It is an invigorator for the aged, a quick builder for the enfeebled, is a palliation for mental troubles, and is valuable to tone up the system after a run of fever. Chapoteant Sol. Bromide Strontium is a good and agreeable preparation and is well tolerated by the stomach. Phillips' Phospho.-Muriate Quinine Compound is a good general tonic. Of the bromides the following are good: Elixir Potassium Bromide, Elixir Sodium Bromide, Elixir Ammonium Bromide. Coca Wine is the safest and best.

Neuralgia. — Is usually caused by poverty of the blood. See Nerve Tonics. Quinacetine (Metcalf) is one of the best remedies. Its use is not followed by any unpleasant effects.

Painful Menstruation and Vaginal Remedies. — Orange Blossoms (J. A. McGill) come in the form of suppositories and is administered direct to the seat of the disease. They are safe and harmless. Have stood the test of use, can easily be administered by the patient and are a specific for profuse menstruation. Wine of American Ash (Metcalf), made from

the outside bark of the white ash, is used in the treatment of the various uterine affections, namely, prolapsus, versions, menstrual irregularities, inflammation, leucorrhœa, etc., depending upon chronic enlargement for their basis. While relief and marked benefit may be obtained by a few weeks' use it may be as many months before absolute freedom from suffering may result. Iodia is much used. It is a combination of the active principles obtained from the green roots of *stillingia helonia*, *saxifraga menispermum* and aromatics. Each fluid dram also contains five grains each iod. potas. and phos. iron. Used especially for leucorrhœa, impaired vitality, habitual abortion and general uterine debility. The surgical craze for the treatment of diseases of the pelvic organs has prevented physicians from studying as carefully as they should the medical treatment. At least it would be well to see what medicines will do before resorting to the knife. Antiseptic Vaginal Cones and Boro-Glyceride Suppositories are also good.

Piles. — Hamamelis Suppositories and Comfort Powder are both good remedies. See chapter on Hemorrhoids.

Plasters. — Their number is legion. Bell-Capsic, Cuticura and Capsicum are all good.

Pain Medicines. — One of the very best of all opium preparations is Papine and it is efficacious in most cases. Papine is the anodyne or pain-relieving principle of opium, the narcotic and convulsive elements being eliminated. One fluid dram is equal in anodyne power to $\frac{1}{8}$ of a grain of morphine.

Prostate Gland Diseases. — Sommetto is used largely for these troubles, especially for the aged.

Rheumatic Medicines. — Quinacetine (Metcalf). This remedy is safe and has no unpleasant or injurious effects. Merrill's Alkaline Elixir is a pleasant and effective remedy in many varieties of rheumatism. Tongaline is used in both rheumatism and gout. It is laxative if taken too often. Iodia is a good remedy for chronic rheumatism.

Salves. — Cuticura and Salvacea.

Stimulants. — Coca Wine (Metcalf) is one of the best and most harmless. Kola Koloid is another excellent preparation. Vin de Chapeau is a good stimulant on the old beef, iron and wine plan.

Skin Diseases. — The various preparations of Sarsaparilla are good. Syrup Trifolium Compound is one of the best remedies to purify the blood. A cure from this remedy is almost certain to remain so. Sulphur is also good. Hamamelis for an external application is soothing and cooling. It is excellent for reducing inflammation.

Syphilis. — Iodia is a purely vegetable remedy made from the juices of the green herbs. Can be taken for a long time without injury to any organs of the body. It improves the nutrition, purifies the blood and is a specific for syphilis in all stages.

Stomach Tonics. — Horsford's Acid Phosphate for indigestion, Tarrant's Seltzer Aperient for acidity and belching of wind. For a strict tonic the following are good: Elixir Calisaya Bark and Bismuth, Elixir Calisaya and Iron, Elixir Calisaya, Bismuth and Pepsin.

Throat Tablets. — Chloramine Tablets, Wyeth's Red Gum Lozenges, and Troches Guaiac are all good.

Vaginal Remedies. — Orange Blossoms are the best for general use. Antiseptic Vaginal Cones and Boro-Glyceride Suppositories are also largely used.

Whooping Cough. — Vapo-Cresoline. Is a liquid to be burned over a night-lamp. It relieves the cough and hastens recovery.

Wounds. — Aristol, Dermatol and Iodoform are used to promote healing.

Antiphlogistin is a substance with an earthy base to which several antiseptics and cromatics have been added. The efficiency lies in the withdrawal of water from the inflamed area, together with the constant application of an antiseptic poultice to the affected part. In pneumonia used as a poultice it has been claimed to exert a powerful influence and gives relief. Antithermolin and several other preparations have a formula quite similar to the above and are said to accomplish the same purpose.

The latest pharmacopœia accepts a preparation which is called Cataplasm of Kaolin. This will be made by druggists at a much cheaper price than proprietary compounds, as the formulæ is furnished to all and consequently is without the stigma of "secret formula." Its action is supposed to be identical with the preparation just described.



THE WOMAN BEAUTIFUL.

THE WOMAN BEAUTIFUL

A TREATISE ON HOW TO KEEP YOUNG

By AUGUSTA PRESCOTT

It was a wise old philosopher who said to his daughter: "Keep young, my child, and you will keep beautiful." To this he might have added, "Keep healthy and you will keep young."

Youth, health and beauty are the three qualities sought by woman-kind. Perhaps in the triple quest, beauty stands first, but it is hard to think of beauty without roses and of roses without youth.

Keep healthy and you will keep young. You can cheat Father Time and actually hold him at bay. Follow this beauty quest patiently and faithfully, and you will keep so young that none but the family Bible can testify how old you are.

A French writer of the days of Louis XI said: "Make beauty a virtue; strive for it; work for it steadily; keep at the beauty contest unceasingly; and do not give up ever—even though the task looks long and apparently hopeless."

The first fault of the woman who is growing in years is the figure. It grows heavy and becomes the middle-aged figure. She sleeps a little longer in the morning; is a little more tired during the day; eats more than she used to; goes to bed earlier, and is less careful of her appearance.

And this is what happens: She grows fat; her chin doubles; her abdomen creeps up; her belt line is too high and too big; her limbs become awkward; and her figure is bulky. She has passed from youth into middle age, but really there is no excuse for this,—it is simply carelessness and neglect of the charms Nature has given her; it is for the want of supplying her skin and muscles with fresh warm blood by proper and careful exercises—which, if followed out for fifteen minutes twice a day, should keep, restore and insure beauty of face and figure.

The woman who is beginning to look old, and the young woman who wants to keep her good looks, should both learn that youth and beauty depend principally upon eight things, all of which are extremely important.



COPYRIGHT 1906
PHYSICIANS PUB CO
BOSTON MASS.

Correct position for walking.



COPYRIGHT 1906
PHYSICIANS PUB CO
BOSTON MASS.

This will give grace and body poise.

The figure: A woman should be neither too fat nor too thin, and in this connection it may be remarked that flesh is easily controlled.

The complexion: Should be smooth and clear.

The mouth, includes the care of two rows of shining teeth.

The eyes: Should be bright, shaded with good lashes and outlined with nice even brows.

The cheeks govern the shape of the face, and should be full and dimpled.

The throat should be just slender enough to support the head like a column; a thick, heavy throat is an abomination, and a double chin is a sure sign of age.

The hands should be tapering, white, well shaped and crowned with ten rosy nails.

The hair, which is woman's crowning glory, should be kept natural, thick and becomingly dressed.

We might add other points of beauty, but these are enough for the average woman.

For the woman who is in fair form and wishes to remain so, should take the following exercises twice a day, clad in a loose suit for gymnasium work, and once a day before exercising take a tepid bath made brisk with aromatic vinegar.

First. The first lesson, and most important, is walking correctly. Put the body in the correct position, walk slowly with head erect, shoulders back, lungs full of air, chin high and far back, abdomen in, and hands at sides. In this position bend the body forward at the belt line; take long steps and turn the feet outward. This will give you the fashionable carriage which is both feminine and pretty. This exercise should be practised for at least ten minutes daily.

Second. With a wand in your hand, mount a footstool.

This exercise consists in balancing, first on one foot, then upon the other, at the same time raising and lowering the wand high above the head.

Third. The bending exercises must be taken up cautiously. Women who are delicate should not bend more than two or three times at a lesson. The exercises consist of walking or running around the room on all fours and bending backward until the hands almost touch the floor if possible, if not, as far as you can; of bending forward until the palms of the hands lay flat upon the carpet, and of swaying far to one side, then to the other.

These exercises are enough for the average woman, and if practised faithfully twice each day together with the bath, will prevent superfluous flesh, and make the skin fresh and the muscles supple, strong and capable of their natural beauty and functions.

For the stout and middle-aged woman we recommend the dumb-bell exercise (See page 1175).

The dumb-bells should be of wood of the lightest make. This exercise, together with the bath, will surely reduce the form to its



Good exercise for stout women.



A severe exercise for strengthening the back.

natural size, bringing the muscles back to their natural position.

The bath for a stout woman should be as cool as she can comfortably take. If her heart is weak—as of course it is—she should not take an ice bath, but a bath of cool water made spicy with bath vinegar.

For water of the right temperature for a stout woman it is well to draw it the night before on retiring and let it stand until morning. It will then be the same temperature of the room, to which should be added the bath perfume or bath vinegar.

An excellent bath perfume can be made by taking a pint of spirits of cologne, into this put half an ounce of oil of rose geranium, add one grain of musk and let stand for two weeks. Pour all into a two quart bottle and fill up with the very best alcohol. This should last about six months, and costs about a dollar. Use a small cupful to a bath.

There is a Frenchwoman making her fortune selling a bath vinegar to the British aristocracy. Here is her secret, it is not expensive:

Procure a large rose jar, fill with dried rose petals, also dried green leaves of the rose, the leaves of dried clover, sweet grasses broken into bits and red clover heads gathered in season. Spice the leaves with cloves, salt, and a few drops of oil of rose geranium, and stir thoroughly with the hand or a long stick. The contents of the jar is called Preserved Aromatic Leaves and is the foundation of the bath vinegar.

The bath vinegar is made as follows:—

Into a gallon jug put a quart of pure red wine vinegar, into this put a cup of Preserved Aromatic Leaves (prepared as above), cover the whole closely; at the end of three days strain off the vinegar and add a pint of pure alcohol. Then bottle. This makes a very invigorating mixture; one that wakens the skin and keeps it young.

Another bath vinegar is made by adding a quart of strawberries to a quart of red wine vinegar. Let stand for three days, then strain and bottle for the bath. A cup in a tub of water makes a complexion bath.

A rose-leaf pillow made from the contents of the Preserved Aromatic Leaves is good for headache.

A long bolster-like pad filled with the same leaves will quiet aching nerves, if a hot-water bag is laid upon the pillow to bring out the scent.

For perfuming the house nothing can equal the beneficial effects of a rose jar of Preserved Aromatic Leaves, stirred in the lower hall every morning.

One of Queen Victoria's physicians advised her to perfume her house daily. Her Majesty had a horror of contagious diseases. "Stir a rose jar every day in the hallway," advised the doctor, "and you will keep away germs, insects and disease microbes, for such pests will not enter when the room is filled with sweet scents."

The extent of the beneficial effects of sweet scents upon the nerves is wonderful. The ancients, when ill, burned sweet spices, and the Bible says in olden times they treated the sick with sweet scents. In the hospitals of the large Oriental cities the nurses scatter a perfume about daily. Your physician will tell you that very sensitive women absolutely revive if given a whiff of violet. Violets are for the nerves, rose for the spirits, and Spanish scents and pinks for the head.

The nervous woman should take a little ammonia and scent it with violet for the best results to her nerves.

The restless woman is positively soothed by a bottle of fine perfume, and should consider it a necessity instead of a luxury. It should be a household remedy, kept in great bottles, home made and in constant use.

The Complexion, or Care of the Skin.

DIETING has its effects not only upon the figure but upon the skin. There was once a time when dieting meant going without food, and many a woman after two or three days of hunger gave it up as a very bad bargain. "I'd rather be fat," she said, "I don't like to starve to death, I cannot diet." Now, in the light of recent science, dieting does not mean being hungry. It means eating all you want, but of food that agrees with you. The complexion, the spirits, the eyes, the liver, so much that is essential to the woman beautiful, depend upon the kind of food you eat. You can utterly destroy your beauty with the wrong kind of food.

The gifted Kipling declares he could tell by their "pastry skins" the women who live on pie. He said bad skins lived in the great pie belt of America. Yet Kipling was wrong. Pie, well baked and eaten warm, is good food. Hot pie, hot bread, hot foods of any kind are bad. They hold the heat too long in the stomach and, while lying there waiting to cool, it irritates the lining of the stomach. A very hot biscuit holds its heat a long time, long enough to injure the strongest stomach, but a moderately warm biscuit is good food.

Salt food is bad for the complexion. It holds the digestion back. Salt preserves food and very salt meat is retained in the stomach too long. It upsets the digestion and injures the skin.

Sweets and sour s are good for the complexion, but they should be taken at the right time.

The society woman who is dependent upon her beauty for her "belledom" is always dieting. Her best diet is the milk diet. For a week twice a year she takes nothing but milk. New York society women usually go upon this milk diet during Lent, as being the most convenient time, and for a week they take nothing into the system but milk.

The dose for the milk diet as laid down by King Edward's physician



COPYRIGHT 1906
PHYSICIANS PUB CO
BOSTON MASS.

Steam the face with a sponge.



A flesh brush can be used lightly on a dull skin.

at a famous country health cure is: "Take a glass of milk upon rising. Then follow it with a glass every hour all day. Add a pinch of salt if you prefer. Drink water between the glasses of milk. The milk will wash all impurities out of the system." Milk thus taken is not very fattening.

Women who are not very strong and who do not like the milk diet, and women who are very hungry, as well as women whose complexions are not very good, and want to improve them, can adopt a betwixt and between diet, which will do for every day in the year, the whole year around. It is called the complexion diet, and is used all the world over.

The Complexion Diet.

IN the morning on rising take a glass of cool water. Drink another glass when sitting down to breakfast. Let the breakfast consist of fruit if you like; if so, take no cream on your fruit.

The union of acid and cream will cause a sour stomach and a poor skin. Baked apples are good, but do not eat baked apples and cream. The same can be said of strawberries and cream. For breakfast eat all the toast you want, eat one lamb chop if you like, and one small cup of coffee, but do not drink anything else with your meal.

At noon (if you dine in the middle of the day) take soup, meat, baked potatoes, spinach or asparagus and celery and lettuce. Drink nothing and eat lightly of dessert.

Drink all the water you want between meals but nothing at your meals. It was Bismark's physician who, on being asked to treat an otherwise beautiful Berlin lady for a poor complexion, said, "She is hopeless. She drinks too much." To the highly offended lady the physician explained that he meant too much water with her meals.

For the evening meal take cooked fruit, toast, a very little weak tea and all the good wholesome cake you want. Eat no fruit that is not cooked, and do not take meat more than once a day. This will give a dietary that will cure the worst complexion, and incidentally it will benefit the teeth.

Wrinkles.

WRINKLES come in a woman's face as soon as she is fully grown. If she be near-sighted and frown, they will come at an earlier age. Worry, care, a tired-out state of the system and sickness brings furrows into a woman's brow long before she is old enough to deserve them.

A wrinkle is like a crinkle in a piece of tissue paper. It is there, but it is easily smoothed out. It is work that must be done repeatedly, as wrinkles come back day by day, and with them you cannot look young.



Plaster treatment for wrinkles.



Dip the finger tips in skin food and massage across the lines



COPYRIGHT 1905
PHYSICIANS PUB. CO.
BOSTON MASS.

Massage to make the neck plump and remove hollows



This will strengthen and make the arms plump.

The wrinkle cure begins with a good face cream or skin food. This can be made at home. The best skin food or massage cream is as follows:—

Of pure mutton tallow take enough to fill an egg shell, warm it, and put in a double boiler over hot water, add half the amount of oil of sweet almonds. Scent with 5 drops of oil of rose geranium, beat with an egg beater as it cools. This can be used as a retiring cream.

At night before going to bed your hard work begins.

First, thoroughly wash the face. If you have not been out in the dust a good washing with the finger tips will do, otherwise you should steam the face. This is easily performed by holding a sponge of hot water to the skin. Do not burn the face, but lift the sponge, letting the water drip over the face; repeat until the skin is hot.

A flesh brush is good. It should be very soft and rubbed very lightly upon the skin. An assistant can give you the flesh brush treatment, running lightly over your face, neck and shoulders, using hot water and pure soap; rinse well afterwards. Then take the massage cream and massage the wrinkles. Take a little of the cream, melt it slightly, dip your clean finger tips and rub them across the wrinkles. They will smooth out under the magical influence of your fingers and the cream will sink into the cuticle and plump out the skin. It is the greatest wrinkle destroyer known. But wrinkles, after one has reached the age of forty years, must be rubbed out nightly or at least three times a week. That is the only way to banish them.

The plaster treatment has been tried with good results, and will appeal to women who have not time for the massage. The wrinkle is stretched flat, and slender strips of plaster are applied. When taken off, the wrinkle will be much lighter.

The arms and shoulders can be made plump by exercise, and by applying the skin food. Rub the food in, leaving it on the skin over night if possible. If the neck is thin and the chin is double—a combination often seen—take the neck and throat exercises which is as follows:—

Bend the head backward and forward and sway the arms. Massage the neck with skin food. It will plump out the hollows and give a nice round neck.

Care of the Hands.

THE care of the hands resembles the care of the face. The hands must be creamed every night. Once a week the nails should be filed until they are the shape of the tips of the fingers. The society woman with taper fingers will have pointed nails, but the business woman whose finger tips are blunt, should cut her nails rounding. The prettiest results are always obtained by filing the nails the shape of the finger tips.



Massage for square jaw and double chin.



COPYRIGHT 1906
PHYSICIANS PUB. CO
BOSTON MASS.

To reduce the double chin.



After soaking the finger tips, shape the nails gently.



The tired, nervous woman is rested by music.

The very long nail is good if one can keep it from breaking. To do so, rub the finger nails every night with vaseline and almond oil, and they will not break.

White spots are scars caused by the orange wood stick or by some sharp instrument used for pushing back the flesh from the base of the nails. Be careful not to press on the nail as you push back the flesh.

To clean the hands after working, take sweet oil and thoroughly rinse the hands with it, rubbing round and round as though one were using a cake of soap. Then fill in under the nails with a good hand soap by scraping the nails over the soap. Wash off in several waters, wiping and drying thoroughly.

Freckled hands in summer are caused by letting the sun touch the hands immediately after they have been washed. The freckles can be removed with lemon juice followed by cold cream, or with a cucumber water.

To make cucumber water, steep a cut-up cucumber in a pint of water; strain and add a teaspoonful of borax powder. Once a week wash the hands in a great basin of tepid water into which add about five drops of tincture of benzoin. This keeps the skin white.

Sleep.

BEAUTY depends largely upon one's sleep. The woman who sleeps soundly is more apt to keep her beauty than one who is sleepless. Plenty of exercise and plain food generally induce sound sleep.

Almost a sure cure for sleeplessness is that of remaining up until one is really sleepy. The woman who is awake from three to five every morning should try by remaining up until 12 o'clock to sleep until 7 o'clock the next morning. This should break up the habit of waking early.

Sleeping with the arms over the head is an indication of backache. Young women with aching muscles most always throw the arms over the head to relieve the strain upon the back. Indigestion and a weak stomach also cause the afflicted one to raise her arms over her head at night. This is a bad habit, as it strains the muscles of the abdomen, and should be cured by rest and proper exercise; sometimes by eating before one goes to bed will help cure the habit. Crackers are too indigestible, but a good slice of bread and butter will sometimes assist in the cure.

Women who are recovering from a serious illness and wish to recover their beauty as well as their health, should devote certain moments of rest listening to strains of sweet music, which has a very strong influence upon the convalescent, as it is very quieting to the nerves.

Fresh air is beauty's great aid. An outdoor shady corner, with music, and a rose pillow, will call back the bloom to the cheeks and should be indulged in every day the weather permits.

Olive oil is a great beautifier. A tablespoonful taken before each meal will fill out the tissues and help the digestion, without making one fat.

Care of the Mouth.

THE middle aged woman seldom or never has a lovely mouth. The teeth sometimes go early in life, and by the age of forty-five they are possibly in a poor condition. When you see an otherwise pretty woman with a crooked mouth, or with her mouth far to one side you say, "Some of her teeth are gone." If you investigate, you will find spaces on the crooked side of her mouth. As she lost her teeth her cheek on that side fell in, her mouth drew to one side and her beauty disappeared.

This can easily be avoided. Have your missing teeth supplied. In these days a good dentist implants teeth. He will also bridge or crown them in such a way that no gold is visible. Go to a cosmetic dentist. A cosmetic dentist is one who aims at beauty. He tries to make you better looking. He restores your teeth until they look just as they did when you were a girl of seventeen. He bleaches them, he straightens them, he replaces your teeth, and sends you home with a handsome mouth.

It is never pleasant to go to a dentist, but there is nothing which so amply repays one. Shun the dentist who puts gold in the front of your mouth. There is such a thing as an "old foggy" dentist, who tries to place a gold cap just where it will grin at the world every time you open your mouth. A cosmetic dentist will pivot the tooth. Don't argue, but find a dentist who is *full of his art*.

Keep the teeth nice by cleaning them with a good tooth paste at least twice a day. Once a week go over them lightly and quickly with some finely powdered pumice. Do not rub hard enough to hurt the enamel, but only sufficient to take off the stains. Rinse the teeth before going to bed at night, and always bear in mind that a sweet mouth is a most attractive feature.

Care of the Eyes.

IN summing up beauty's requirements, it is difficult to say how the eyes should be classified, they are so much to the face. Beautiful eyes should be large and full. The lashes healthy and long, the eyebrows almost straight across the forehead. Meeting brows give one a scowling look. On the other hand scanty brows make one look frightened. If your eyebrows are thin, take a little vaseline and heat it with an equal quantity of pure almond oil. Stir together, pour into a jar and let cool; at night set the bottle in hot water and when the mixture is melted, apply to the eyebrows with a camel's hair brush. Paint them as delicately as though you were painting them upon a canvas.



COPYRIGHT 1905
PHYSICANS PUB. CO.
BOSTON MASS.

Removing hairs from eyebrows that meet.



COPYRIGHT 1905
PHYSICANS PUB. CO.
BOSTON MASS.

Massage the scalp lightly once a week.

Washing the eyes with hot water at night will add much to their beauty. This clears them of dust and gives them a chance to rest during the night. On coming in upon a dusty day, wash the eyes with water to which borax powder has been added. In buying borax for the eyes, tell the druggist how you wish to use it; add a little to the water and bathe your eyes every day.

Fat faced women always have small eyes. As the fat increases on the face the cheeks puff up and the eyes dwindle. Eyes can be made larger if one will take the trouble to massage the cheeks until the fat is less noticeable. Never touch the eyes with the hands to make them larger.

Delicate women have large eyes with shadows under them. As they grow older these shadows become bags, generally caused by internal troubles. Bags under the eyes destroy the beauty of the face. To get rid of these bags or eye sacs, massage carefully and persistently, also reform the diet, for the eyes are particularly the sign of a bad liver. It is good to eat apples, cooked and raw; correct the liver and the eye sacs will disappear.

If the brows meet between the eyes, or if there is superfluous hair upon the upper lip, something must be done for its removal. The electric needle is best. If you wish to use the electric needle it is easily and cheaply acquired. Buy a set of electric cords, a wrist electrode, a needle, needle holder and a galvanic battery. The last mentioned can be used for many household purposes and is always money well spent. The outfit aside from the battery costs about three dollars.

A woman troubled with superfluous hair on her upper lip pulled out the hairs and applied weak ammonia water; only half came back, she repeated the remedy, and after several treatments all the hairs disappeared.

If the hands and arms are covered with superfluous hair, the hairs can be made less noticeable by bleaching them with peroxide of hydrogen. Add a little ammonia to the peroxide. Ammonia will in time kill the constitution of the hair, and the hairs will fall out, meanwhile they will be so very light as to be hardly visible. Powdered pumice will take a light growth of down off the arms and wrists.

The Hair.

THE hair should be studied by a woman as carefully as the care of the face. The hair is a great addition to any woman's looks, but from lack of proper care is frequently quite the reverse. It should be heavy, glossy, clean, and so arranged that it acts as a frame to the face. In these days all women can have heavy hair. The scalp should be massaged once a week with the finger tips and where the hair is getting thin, there should be the oil treatment for the scalp.

Pour into a thimble enough oil to half fill it. Use castor oil if



A Perfect "Cupid Bow" Mouth.

you are equal to the odor, otherwise use pure oil of almonds. Part off the hair, dip the tips of the fingers one by one in the oil, and then carefully, so not to make the hair oily, go down the parting, gently spitting and massaging it. Part off the hair again, pat it, and continue until the whole scalp has been slightly oiled, but do not get a particle of oil upon the hair.

Shampoo the hair once in three weeks, with either an egg or soap shampoo.

For egg shampoo, use tepid water, wet well, then rub in the yolks of two eggs, rinse with several hot waters; in the last use a little borax to soften the water.

For soap shampoo, use the best castile soap. Make a suds but never rub the soap on the hair; rinse carefully.

To brighten the color of the hair, add a little baking soda to the shampoo, afterwards washing it out well. To make the hair "bloom," dry in the sun, afterwards shaking it out to ventilate.

Excellent Hair Tonic.

Take a 5-cent bar of white castile soap and dissolve in a quart of boiling water, boil 10 minutes, cool and add one pint of bay rum, one tablespoonful of borax and 20 grains of quinine. Add a tablespoonful to your shampoo water.

To Bleach or Redden the Hair.

To change the color of the hair is never good taste, but the hair can be brightened in some simple way. The woman who must bleach her hair can do so with pure peroxide of hydrogen, but it will look bleached, and moreover it requires constant care to keep it colored as it grows out. To redden the hair, wash it in henna tea made by steeping henna leaves in hot water.

A woman should take stock of her attractions frequently. She should study her weak points, fortify and improve them, it is labor, but labor well spent, for only in this way will she keep herself young and attain the desired end, namely, that of being always a young and beautiful woman.

To Enlarge the Bust.

An efficacious, yet safe method to enlarge the bust is a persistent massage with some bland oil, of which cocoanut or olive oil are good examples. With a rotary motion and little oil, the breast should be thoroughly rubbed morning and night for some weeks, and a gratifying result will be obtained.

The employment of tablets, fancy formulas, etc., will only too often result in disappointment if not disaster.



A STUDENT OF PHYSICAL CULTURE.
Showing perfect Arm, Chest and Waist Development.

PHYSICAL CULTURE — GYMNASTICS.

IN America the noblest interests of the race have reached unparalleled development. In no other country, in no other age, has mental culture been so complete and universal. It is an era in the progress of the race. The fruits of labor which in other times and lands have been wasted upon the abnormal life of the few, have here, like air and light, the two great representative gifts of Heaven, found their way to the normal life of the million.

But in this hour of triumph the national life is jeopardized by physical exhaustion. While the admiring world looks on, our bodies upon which as a foundation our higher faculties must rest, crumble and give way. Precocious brains are borne about by doubtful spines; brilliant talents are linked with dying bodies.

Men, women, and children should be strong, but it should be the strength of grace, flexibility, agility, and endurance; it should not be the strength of a great lifter. Let me allude to the gymnastics of the circus. Permit me to call special attention to three features — to the man who lifts the cannon, to the india-rubber man and to the general performer. The lifter and the india-rubber man constitute the two mischievous extremes. It is impossible that in either there should be the highest physiological conditions; but, in the persons of general performers, is found the model gymnast. They can neither lift great weights nor tie themselves into knots, but they occupy a point between these two extremes. They possess both strength and flexibility, and resemble fine, active, agile, vigorous carriage-horses, which occupy a point between the slow cart-horse and the long-legged, loose-jointed animal. The race-horse has a much more vigorous circulation than the cart-horse. It is a fact not unfamiliar to horsemen, that when a horse is transferred from slow, heavy work to the carriage, the surface veins about the neck and legs begin at once to enlarge; when the change is made from the carriage to the cart, the reverse is the result.

And when we consider that the principal object of all physical training is an elastic, vigorous condition of the nervous system, the superiority of light gymnastics becomes still more obvious. The nervous system is the fundamental fact of our earthly life. All other

parts of the organism exist and work for it. It controls all, and is the seat of pain and pleasure.

The impressions upon the stomach, for example, resulting in a better or worse digestion, must be made through the nerves. This supreme control of the nervous system is forcibly illustrated in the change made by joyful or sad tidings.

Could we have an unbroken succession of good news, we should all have good digestion without a gymnasium. But in a world of vexation and disappointment, we are driven to the necessity of muscle culture, and other hygienic expedients, to give the nervous system that support and vitality which our fitful surroundings deny.

If we would make our muscle-training contributive in the highest degree to the healthful elasticity of our nerves, the exercise must be such as will bring into varied combinations and play all our muscles and nerves. Those exercises which require great accuracy, skill and dash are just those which secure this happy and complete intermarriage of nerve and muscle.

Another point I take the liberty to urge. Without *accuracy* in the performance of the feats, the interest must be transient. This principle is strikingly exemplified in military training. Those who have studied our infantry drill have been struck with its simplicity, and have wondered that men could go through with its details every day for years without disgust. If the drill-master permits carelessness, then authority alone can force the men through the evolutions; but if he enforce the greatest precision, they return to their task every morning for years with cheerfulness.

At this point it may be urged that those exercises which hasten the action of the thoracic viscera to any considerable degree are simply exhaustive. This is another blunder of the "big-muscle" men. They seem to think you can determine every man's constitution and health by the tape-line; and that all exercises whose results are not determinable by measurement are worthless.

I need scarcely say there are certain conditions of brain, muscle, and of every other tissue, far more important than size; but what I desire to urge more particularly in this connection is the importance, the great physiological advantages, of just those exercises in which the lungs and heart are brought into active play. These organs are no exceptions to the law that exercise is the principal condition of development. Their vigorous training adds more to the stock of vitality than that of other organs.

I have said an elastic tone of the nervous system is the physiological purpose of all physical training. If one may be allowed such an analysis, I would add that we exercise our muscles to invigorate the thoracic and abdominal viscera. These in their turn support and invigorate the nervous system. All exercises which operate more directly upon these internal organs, as, for example, laughing, deep breathing, and running, contribute most effectively to the stamina of

Chest expansion.



Perfect back and shoulder development.

the brain and nerves. It is only this mania for monstrous arms and shoulders that could have misled the intelligent gymnast on this point.

As our artificial training is designed to fit us for the more successful performance of the business of life, I suggest that the training should be, in character, somewhat preparatory for those duties. If you would train a horse for the carriage, you would not do it by driving at a slow pace before a heavy load. If you did, the first fast drive would go hard with him.

Just so with a man. If he is to lift barrels of flour, or kegs of nails, as a business, he may be trained by heavy lifting; but if his business requires the average velocity and free motions of human occupations, then upon the basis of his heavy slow training, he will find himself, in actual life, in the condition of the dray-horse, who is pushed before the light carriage at a high speed.

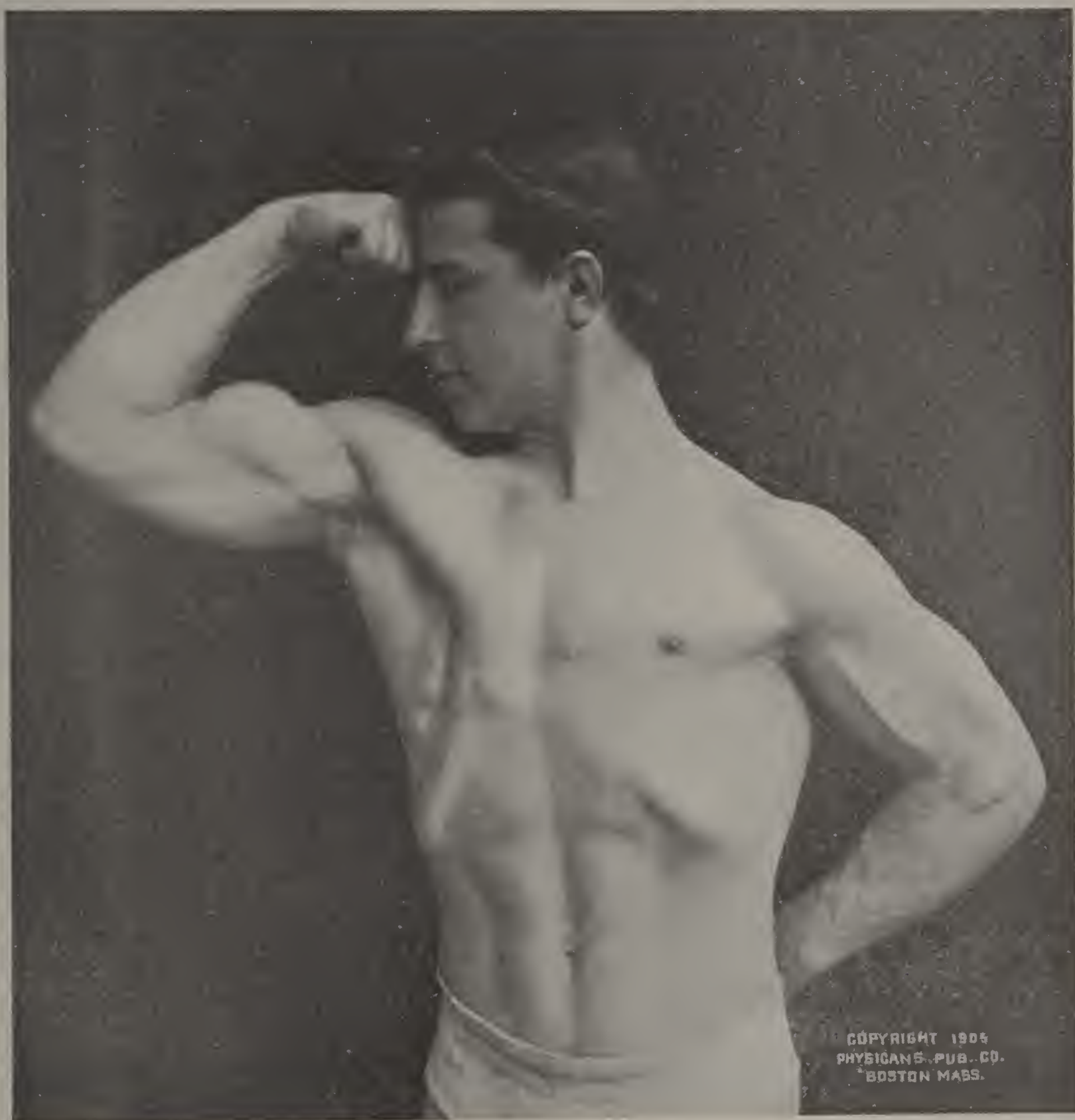
Is it true that in either intellectual or physical training, bold, brilliant efforts, under proper conditions and limitations, exhaust the powers of life? On the contrary, is it not true that we find in vigorous, bold, dashing, brilliant efforts the only source of vigorous, bold, dashing and brilliant powers?

In this discussion I have not considered the treatment of invalids. The principles presented are applicable to the training of children and adults of average vitality.

I will rest upon the general statement that all persons of both sexes, and of every age, who are possessed of average vitality, should, in the department of physical education, employ light apparatus, and execute a great variety of feats which require skill, accuracy, courage, dash, presence of mind, quick eye and hand,—in brief, which demand a vigorous and complete exercise of all the powers and faculties with which the Creator has endowed us; while deformed and diseased persons should be treated in consonance with the philosophy of the *Swedish Movement Cure*, in which the movements are slow and limited.

We rejoice to see that the American people of all classes and both sexes are taking more and more interest in outdoor sports. The bicycle, if used in reasonable moderation, will prove a great factor in the physical development of both sexes; but the danger is that the American idea of trying to outdo others will cause the young with untried muscles to attempt century runs and generally to overdo; while, if they should take reasonable rides, and enjoy the fresh air and scenery, it would prove a benefit to mind and body.

There are many simple contrivances to use at home, if not convenient to take full gymnastic courses. We give a description of several, either of which, if faithfully used, will be of great benefit.



PERFECT ARM DEVELOPMENT.



Lifting heavy dumb-bell to show perfect physical development—(In dumb-bell practice, however, only the light wooden dumb-bells should be used.)

Dumb-bell Exercise.

To those, then, who say they have no time for exercise, we heartily recommend our home lessons, which, in connection with a daily walk will be just exactly what is required to secure physical perfection and muscular strength, without putting yourself to but very little trouble to attain it. Ten or fifteen minutes daily, morning and evening, or to suit convenience it may not be so divided, but may all be taken in the morning, or all in the evening, will, in connection with walking, keep the muscular system in perfect condition, and thus insure perfect bodily health.

Exercise should *never be taken immediately after a plentiful meal, nor should it be taken to excess, particularly during hot weather.* In the former case too much cerebral influence for the time being expended in muscular action, the amount of it conveyed to the stomach is insufficient for the laborious function that viscus has to perform, and indigestion is the consequence. It is possible to fatigue the body beyond a proper point, in which case repose becomes necessary; but this is a rare occurrence compared with the instances of insufficient exercise, or where the mind is stretched beyond its natural power to bear, by the ambitious student, the covetous and careworn merchant.

All persons of both sexes, and of every age, who are possessed of average vitality, should, in the department of physical education, employ light apparatus, and execute a great variety of feats, which require skill, accuracy, courage, dash, presence of mind, quick eye and hand,—in brief, which demands a vigorous and complete exercise of all the powers and faculties with which the Creator has endowed us.

The following dumb-bell exercise will prove a tremendous advantage, perfect development and good health.

In no case should the pupil bend the legs at the knee, or his arms at the elbow, unless it is so directed. No rule in the dumb-bell exercises is so important as this. If it be forgotten, exercises with dumb-bells will lose more than half their value.

No. 1. The position is shown in Fig. 1. Thumbs outward. Bells exactly horizontal. Turn the thumb ends of the bells to the hips, and then back again to the position shown in the figure. Repeat ten times. Let the change be made with the greatest accuracy. When it is well done, no matter which end is at the hip, a straight rod run through one dumb-bell, lengthwise, would at the same time run through the centre of the other.

In this and all subsequent dumb-bell exercises, the pupil must be careful not to bend the elbows. When exceptions to this rule occur, they will be plainly indicated.

No. 2. Position seen *Fig. 2*. Keep the elbows pressed against the sides and twist the bells so the ends are exactly reversed. Be sure they are exactly in line with each other, and the forearms parallel. *Repeat ten times.*



Figure 1.



Figure 2.

No. 3. In passing from No. 2 to No. 3, bring the bells to the chest, and on the next beat to the position in *Fig. 3*. The palms of the hands are upward. Bells exactly horizontal and parallel to each other. Turn the hands over, knuckles upward. Bells now exactly in the same position as before. *Repeat ten times.*



Figure 3.



Figure 4.

No. 4. In passing from No. 3 to No. 4, bring the bells to the chest, and on the next beat to the position in *Fig. 4*. The palms forward.

Twist the bells so the knuckles are forward. *Repeat ten times.* Arms to be kept parallel from first to last.

No. 5. Position as in *Fig. 5*. In passing from No. 4 to No. 5, bring the bells to the chest. Twist the arms so that the bells are exactly reversed.

It will be seen in the figure, the palms are upward. When the bells are reversed, the knuckles are upward. Keep the arms parallel. *Repeat ten times.*

In passing from one exercise to another, I have spoken of bringing the bells to the chest. They should strike the chest exactly at the point shown in *Fig. 6*.



Figure 5.



Figure 6.

No. 6. Thrust the two bells down by the side of the legs. Bring to the chest, and thrust them sideways. Bring to the chest and thrust them upward. Bring to the chest and thrust them forward.

Repeat these four thrusts five times.

When the down thrust is made, the pupil must be careful that at the lowest point the bells are precisely horizontal, and parallel to each other. When the side thrust is made, the arms must be horizontal, the bells perpendicular and parallel to each other. When the upward thrust is made, the arms must be accurately perpendicular, bells parallel and horizontal.

When the forward thrust is executed, the arms must be exactly horizontal, and the bells perpendicular and parallel.

No. 7. Raise the right-hand bell from the side of the leg into the arm-pit, five times. (*Fig. 7*.) Left, five times. Alternately and simultaneously, five times.

Be sure that each time when the bells come into the arm-pits they are exactly horizontal.

No. 8. Passing from No. 7 to No. 8, bring the bells to the chest; on the next beat to the top of the shoulders; on the next beat carry up

the right, reaching accurately the position seen in *Fig. 8*. Repeat five times. Left the same. Alternately and simultaneously, each five times.



Figure 7.



Figure 8.

No. 9. Passing from No. 8 to No. 9, bring the bells to the chest (the dotted lines in *Fig. 9* show it), then down by the sides; in all, as usual, keeping good time to the music. Now carry the right bell



Figure 9.



Figure 10.

to the chest, then up, reaching the position shown in *Fig. 9*. Return to the hip, marking one beat on the chest in going down. Repeat ten times. Left, the same. Alternately and simultaneously, ten times.

No. 10. Bring the bells to the chest. Strike out the right one in front, arm precisely horizontal, bell perpendicular. (*Fig. 10.*) Repeat twenty times. Left, the same. Alternately and simultaneously, twenty times.

As usual, keep the chest well forward, and the shoulders drawn far back.

No. 11. Holding the bells in the position seen in *Fig. 11*, bring them with great force into the position seen in the dotted line, forty times. In beginning this elbow-thrust backward, it is well to first raise the bells a foot, that they may be brought back with more force, and more directly into the position seen in the dotted lines. But in carrying them forward again, it should be first into the position seen in the figure.



Figure 11.



Figure 12.

No. 12. Stamp the left foot, then the right, then charge out into the position seen in *Fig. 12*. Make sure that the leg behind, in this and all subsequent charges, is kept entirely straight, while the one forward is placed as shown in the figure. Holding the arms as illustrated, force the entire person into the position of the dotted lines, five times. There should be no motion in the shoulder joints. The chest is pushed far forward, and the shoulders drawn well back. These directions are applicable to all charging exercises, in which a different course is not plainly indicated.

It will be observed that the charge in No. 12 is exactly sideways.

Rise to the perpendicular again, stamp with the right foot, then the left, and lastly charge out on the left side, and repeat the performance of the right side five times.

No. 13. Rise to the perpendicular, stamp with the left foot, then with the right, then charge out as shown in *Fig. 13*. Under the directions given in No. 12, sink five times.

Same on the left side, of course with the intermediate stamping.

No. 14. After the regular stamping, the pupil should charge in the manner illustrated in *Fig. 14*. Sink five times.

Same on the left side.

In this, as in *Figs. 12* and *13*, the charging is exactly sideways.



Figure 13-14.

No. 15. Stand upright, hands by the side. Raise the right hand, as shown in *Fig. 15*, five times. Left, the same. Alternately and simultaneously, five times.



Figure 15.

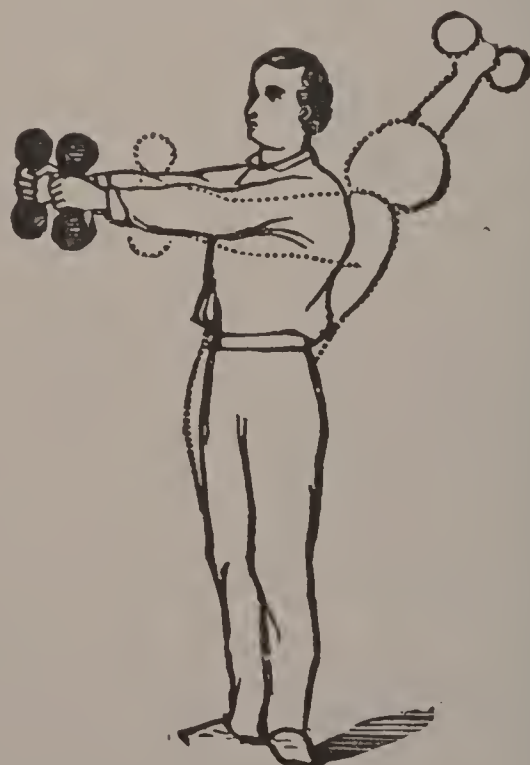


Figure 16.

In this the arm is carried up with a quick, strong effort, and arrested at the horizontal line, precisely as if it had struck a rock. When it is brought back to the side again, it is with the same force and sudden arrest. This and the next one are among the most severe of the dumb-bell exercises.

No. 16. Assuming the position seen in *Fig. 16*, force back the right arm, as seen in the dotted line, five times. Left the same. Alternately and simultaneously, five times.

The arm must not be bent at the elbow.

The directions given in No. 15, in regard to force and sudden arrest, are applicable to this exercise.



Figure 17.

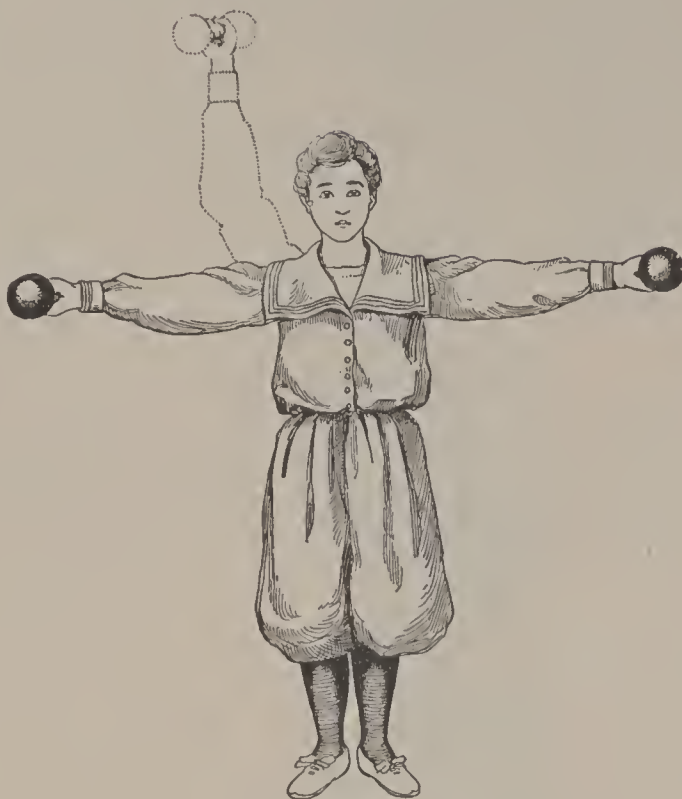


Figure 18.

No. 17. Beginning as in No. 15, with the arms hanging, combine the two exercises, Nos. 15 and 16, in one sweep, reaching the posi-



Figure 19.



Figure 20.

tion of the dotted line in *Fig. 17*. Repeat five times. Left hand the same. Alternately and simultaneously, five times.

No. 18. Stand upright, arms hanging. Raise the right arm to the horizontal, at the side, with the palm up. Repeat five times. Left, the same. Alternately and simultaneously, five times. The position of one of the arms is seen in *Fig. 17*.

No. 19. Having the arms extended at the sides as shown in *Fig. 18*, raise the right arm to the position seen in the dotted line, five times. Left, the same. Alternately and simultaneously, five times.

In raising the dumb-bells over the head, be careful that they are in such a position that, when the two are up together, they are exactly horizontal and parallel to each other.

No. 20. Beginning as in No. 18, arms hanging, combine Nos. 17 and 18, in one sweep, each arm five times. Alternately and simultaneously, the same.



Figure 21.



Figure 22.

No. 21. Standing upright, arms hanging, charge into the position shown in *Fig. 19*; remaining thus, thrust the arms in front, in a horizontal line, five times, alternately and simultaneously. Rising to the perpendicular, stamp with the right foot, then the left, then charge out with the left foot, and repeat the exercises with the arms.

It will be seen by the figure that the leg behind is kept entirely straight and rests on the toe. The special point in this exercise is to reach the dumb-bell as far forward as possible.

No. 22. Standing as represented in *Fig. 20*, force the right arm into the position shown in the dotted line, five times. Left the same. Alternately and simultaneously, five times.

In this exercise keep the body as erect as possible.



Figure 23.

No. 23. Having the arms perpendicular over the head, perform the same exercise as in the last number, with right hand, left hand, then alternately and simultaneously.

No. 24. Placing the feet in position of *Fig. 21*, raise the arms with great force from the hanging position to that seen in *Fig. 21*. On the next beat bring the arms to the position seen in *Fig. 22*; on the next to that seen in *Fig. 23*; on the next beat sweep back to the position seen in *Fig. 22*; then to the position seen in *Fig. 21*. Repeat five times. Stamp right and

left, then step out with the left foot, then swing the arms over the head, performing the same exercise on the left side.

In this exercise neither arms nor legs should be bent.

No. 25. Stand erect, arms horizontal in front and parallel to each other. Carry the right hand backward in the horizontal plane (*Fig. 24*) as far as possible; return it. Repeat ten times. Left the same; alternately and simultaneously, ten times.



Figure 24.

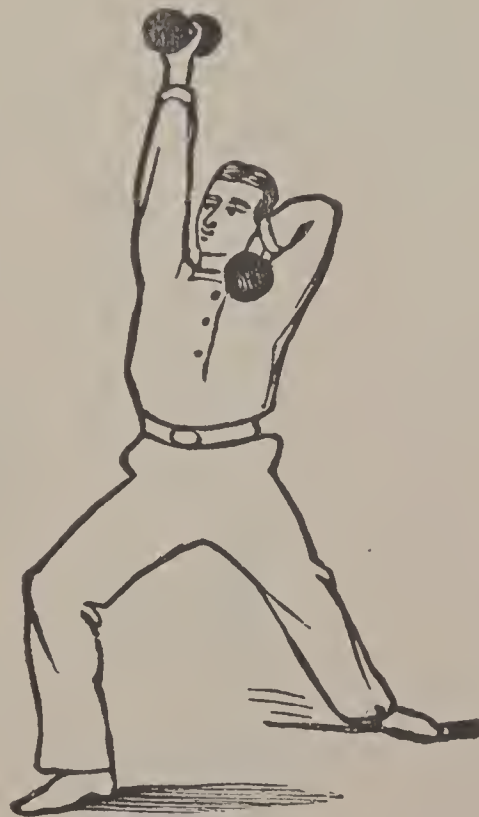


Figure 25.

No. 26. Standing erect, arms hanging, stamp with the left foot; then with the right; then charge into the position seen in *Fig. 25*, and thrust the arms in a direct line upward, alternately and simultaneously, ten times. Assuming the erect position, drop the arms by the side, stamp the right foot, then the left, and charge out on the left side; repeat the exercise with the arms.

In this exercise, it will be seen, the leg behind is straight, that charged forward, considerably bent.

No. 27. As in nearly all other exercises, begin with the heels



Figure 26.

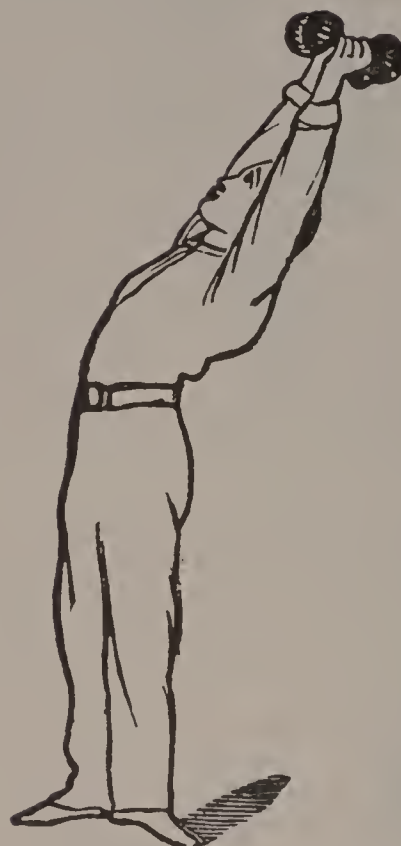


Figure 27.

together, body erect, chest forward, shoulders back, arms hanging, dumb-bells horizontal and parallel to each other. Step diagonally

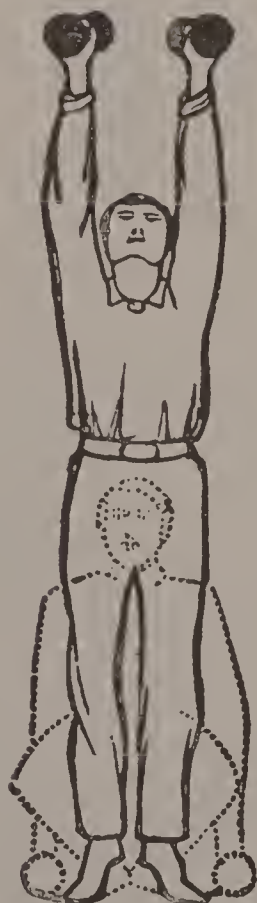


Figure 28.



Figure 29.

backward with the right foot, as seen in *Fig. 26*, and repeat the exercises in No. 26. Same with the left foot.

In this exercise the forward leg is kept straight, that behind is bent as much as possible.

No. 28. Bells on the chest. Carry the right arm out at the side, thrusting it as far back as possible; suddenly bring it back to the chest in a circle as if grasping a large body standing in front. Repeat five times. Left hand, same. Alternately and simultaneously, same.

In this exercise the arms should be kept in the horizontal plane, and should in the performance of the exercise enclose as large an armful of the imaginary objects as possible.

No. 29. Standing erect, arms hanging at the side, suddenly turning the body to one side as far as you can twist it without moving the feet, carry the arms to the position seen in *Fig. 27*. Bring them back to the sides, while at the same time you bring the body to the first position. Swing the arms up on the other side, and so continue, alternating twenty times.

No. 30. Standing erect, arms hanging, bring the bells to the chest, then to the floor, as shown in the dotted line in *Fig. 28*; then rising, bring the dumb-bells again to the chest, and on the next beat thrust them as far upward as possible, rising on the toes; then back to the chest. Repeat twenty times.



Figure 30.

the toes; then back to the chest. Repeat twenty times.

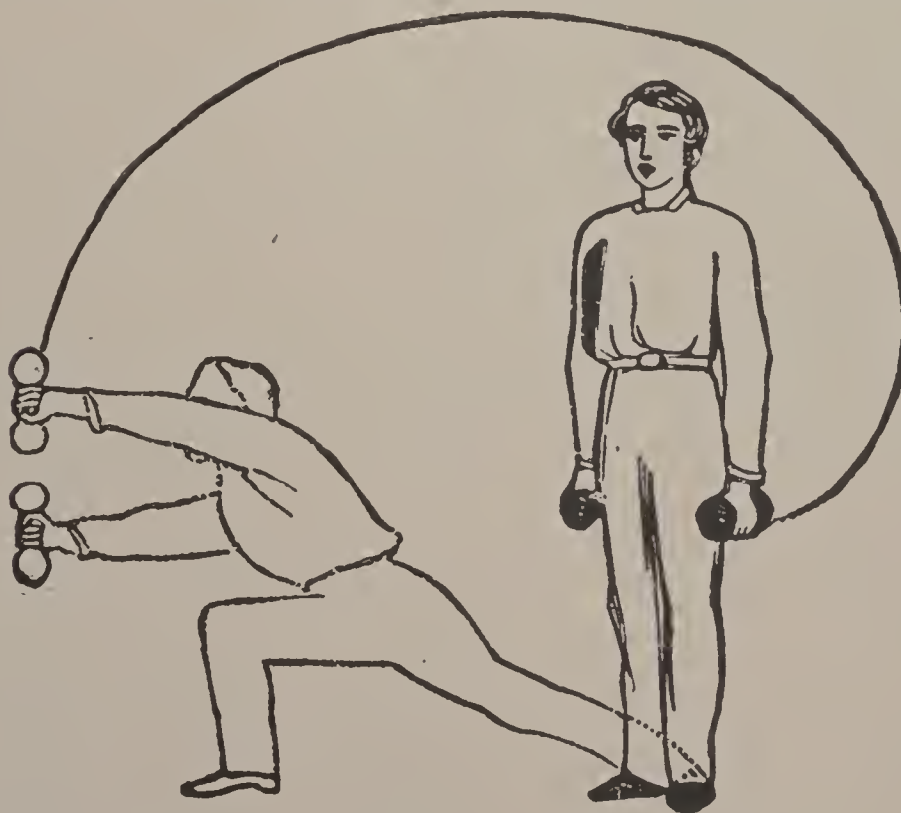


Figure 31.

No. 31. Standing erect, dumb-bells on the shoulders (not on the

chest), thrust the right arm out at the side as seen in *Fig. 29*, ten times. Left, the same. Alternately and simultaneously, the same.

No. 32. Standing erect, arms hanging, carry the arms to the horizontal in front; then to the position over the head seen in *Fig. 30*; now down to the horizontal again, and then to the floor as seen in the dotted line. Repeat ten times.

In this exercise there must be no bending at the knees or elbows.

No. 33. Standing erect, arms hanging, charge out with the right

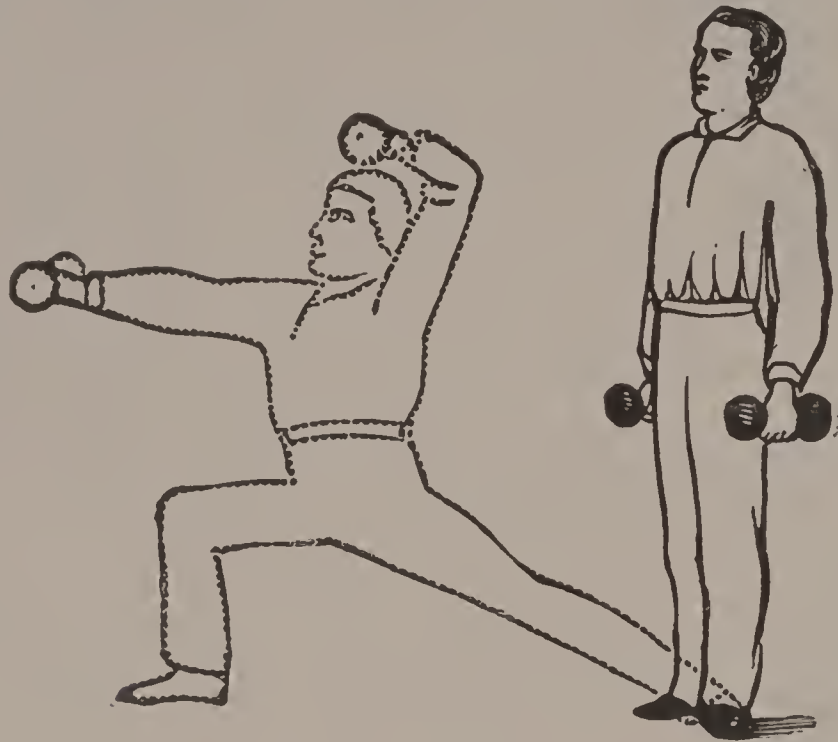


Figure 32.

foot, and sweep the left arm as shown in *Fig. 31*; on the next beat return to the first position. Repeat five times. Same on the left side. Alternately, five times.

No. 34. Standing erect, arms hanging, without moving the body, carry the right foot out sideways, lifting it from the floor, and bringing it back to the other foot, without bending the knee, five times; then charge into the position seen in *Fig. 32*, and return to the first position, five times.

The arm which is brought over the head must be carried in a direct line from the side to the position over the head, and not brought toward the front of the body in its passage up or down.



COPYRIGHTED 1905 AMERICAN COLLEGE PHYSICAL CULTURE BOSTON MASS.

JAPANESE ASSISTANT. PROF. J. J. O'BRIEN.

To start throwing opponent with one hand.

"A noble soul dwells in a strong body."

—*Japanese Proverb.*



JIU-JITSU

— BY —

American College of Physical Culture



WE know that you will find interest in reading and demonstrating to your own satisfaction the effectiveness of Jiu-Jitsu, in its mildest form, as a means of self-defense.

This is the first time that all the secrets of the Japanese national system of physical training and self-defense have been given to Western people. Less than a generation ago, you could not have obtained this knowledge at any price. So religiously have the principles of Jiu-Jitsu been guarded that no foreigner has ever before received official instruction from one who has taken the highest degree in the art.

Jiu-Jitsu is the most wonderful system of physical training the world has ever known. It is a science. It is muscle dominated and directed in every detail by brain. The Japanese are the hardest race of people in the world to-day, and we attribute their wonderful strength and power of endurance solely to the persistent practice of their national system of physical development. Jiu-Jitsu develops every muscle and strengthens every organ in the human body. It does not produce knotted muscles, but develops the body harmoniously and uniformly. It affects those minute muscles which are not reached by any other system. It strengthens the heart action, scientifically renews and invigorates every tissue, and helps every organ to perform its functions. The man or woman who devotes ten minutes daily to the practice of Jiu-Jitsu will enjoy a degree of health and strength that will make him or her thoroughly alive and fully conscious of the possession of perfect manhood or womanhood. (The improvement of the average American pupil in from thirty to sixty days is as follows: Development of the chest, three to four inches; chest expansion, three to five inches; upper arm, one to two inches;

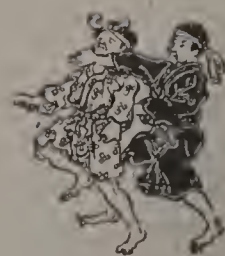
forearm, one-half to one inch; thigh, two to three inches; and the entire body in proportion.)

Jiu-Jitsu is also a natural and positive cure for constipation, indigestion, and all forms of dyspepsia, insomnia, pulmonary troubles,





and lack of vitality. Its practice improves the appetite, accelerates circulation, and aids assimilation. And to the increased vigor and tone of the system the brain responds, and the mental capacity

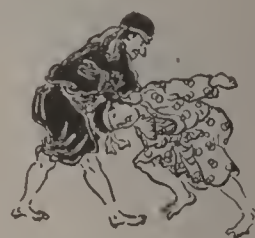


as well as the physical is improved. The Japanese enjoy better health than any other nationality. With them consumption is very rare, dyspepsia has no meaning, and physical weakness is an affliction with which only the aged are beset. Extreme leanness is regarded in much the same manner as Americans regard physical deformity, and extreme corpulency is unknown. There is a reason for all this and it is found in Jiu-Jitsu.

As a means of self-defense, Jiu-Jitsu is as potent at short range as the most deadly weapon that human ingenuity has devised. A Japanese skilled in this art has no fear of any form of personal attack. He will even defend himself unarmed against a swordsman and emerge from the combat victorious. The science of Jiu-Jitsu takes into account the vulnerable points in the human body. It comprehends the laws of mechanics, thus enabling the weak to overthrow the strong. One unskilled in the art is entirely at the mercy of the expert Jiu-Jitsuian, no matter how unequally matched in point of size or strength the contestants may be. An opponent may be overcome and remain unharmed if it be the will of the operator, or he may be seriously disabled by a slight pressure exerted at a vulnerable point, or a sharp twist of the arm, as to be rendered utterly helpless and unable to renew the attack.

The following illustrations give some idea of the first lessons in Jiu-Jitsu, which represents Professor J. J. O'Brien, who was for many years a resident of Japan, and received his diploma as Professor of Jiu-Jitsu from the Government of Japan.

Professor O'Brien was the teacher who instructed President Roosevelt, members of his Cabinet, and heads of many of the Departments in Washington.





COPYRIGHTED 1905 AMERICAN COLLEGE PHYSICAL CULTURE BOSTON MASS

JAPANESE ASSISTANT. PROF. J. J. O'BRIEN.

Hammer and neck lock.



COPYRIGHTED 1905 AMERICAN COLLEGE PHYSICAL CULTURE BOSTON MASS

JAPANESE ASSISTANT. PROF. J. J. O'BRIEN.
The lever and twist hold.



COPYRIGHTED 1905 AMERICAN COLLEGE PHYSICAL CULTURE BOSTON MASS.

JAPANESE ASSISTANT. PROF. J. J. O'BRIEN.
An easy way to walk your opponent.



COPYRIGHTED 1905 AMERICAN COLLEGE PHYSICAL CULTURE BOSTON MASS.

JAPANESE ASSISTANT. PROF. J. J. O'BRIEN.
Crank lever and chin hold.



COPYRIGHTED 1905 AMERICAN COLLEGE PHYSICAL CULTURE BOSTON MASS.

JAPANESE ASSISTANT. PROF. J. J. O'BRIEN.
Arm and neck hold.



COPYRIGHTED 1905 AMERICAN COLLEGE PHYSICAL CULTURE BOSTON MASS.

JAPANESE ASSISTANT. PROF. J. J. O'BRIEN
A policeman's hold.



PROF. J. J. O'BRIEN. JAMES J. CORBETT.
Block for left head.



PROF. J. J. O'BRIEN. JAMES J. CORBETT.
Preventing opponent from breaking clinch.

. Jiu-Jitsu.

SOME of our readers, no doubt, will prefer a thorough course in Jiu-Jitsu. The Physicians' Publishing Company has used every effort to obtain the only reliable instruction in Jiu-Jitsu in this country, and has purchased from the American College of Physical Culture and Jiu-Jitsu Professor John O'Brien's complete course.

Professor O'Brien was for ten years Inspector of Police at Nagasaki, Japan, and received a diploma as Professor of Jiu-Jitsu from the Japanese government. He came to America well known and highly recommended, and it was he who introduced Jiu-Jitsu in this country,—first in Washington, D. C., by giving instruction in the art to President Theodore Roosevelt, members of his Cabinet, and heads of many of the departments.

We have therefore issued in book form twenty-eight (28) lessons in Jiu-Jitsu, giving full description with about one hundred full-page illustrations of the Jiu-Jitsu holds and locks. This we will send to any reader of "The Household Physician" by their filling out the blank below and mailing to us, enclosing fifty cents for the book in paper binding, and one dollar in cloth binding.

PHYSICIANS' PUBLISHING COMPANY

95 Milk Street, Boston, Mass.

Gentlemen:

Please find enclosed Post-office Order for

Please send me book of Jiu-Jitsu in binding.

Name.....

Address

FOLLOWING ARE FOUR PAGES GIVING
AN IDEA OF THE PHYSICAL CULTURE
LESSONS INCLUDED IN THE BOOK MEN-
TIONED ON THE PRECEDING PAGE.



CURE FOR RHEUMATISM.

SAMPLE PRESCRIPTION.



READY POSITION.

Stand on tiptoe, feet about twelve inches apart, dumbbells under the armpits.

MOVEMENT.

(1) Sink slowly down by bending the knees outward, straightening the arms by the sides; exhale. (2) Straighten the legs and resume ready position; inhale. The heels should not touch the floor throughout the exercise. Count 1, 2 (sink, raise.)

NOTE. — Keep the back perpendicular while descending; this is done by looking direct to the front; fully inflate the chest and stiffen the legs when descending.

TABLE	
DAYS	TIMES
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	

Principal muscles used: Quadriceps, and biceps of the thighs and arms, deltoids, gastrocnemius, tibialis anticus, also lungs.

* From American College of Physical Culture and Jiu-Jitsu.

This is one of the prescriptions given for obesity, as illustrated on the opposite page.



READY POSITION.

Hands on the hips, waist drawn in, bend body forward.

MOVEMENT.

Rotate slowly in a circle from the waist line, from right to left, reverse. Count 1, 2 (right, left.)

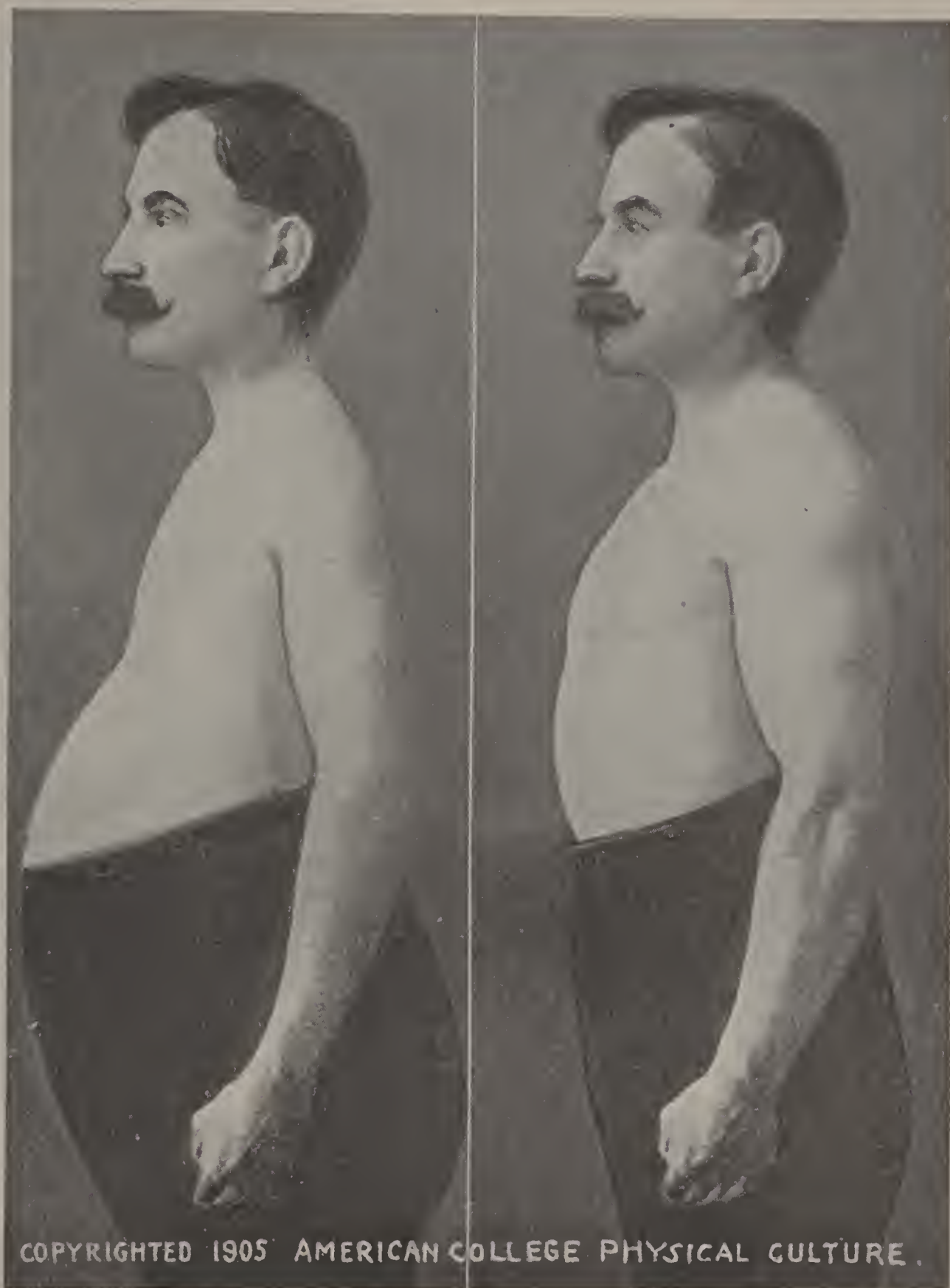
NOTE. — Bend as far as possible when going to the rear, and forward when going to front; keep the legs straight. This movement affects the liver, also abdomen and back.

TABLE

DAYS	TIMES
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	

Where drugs fail, our system is successful in the following cases: — Constipation, indigestion, nervous troubles, general debility, sleeplessness, obesity, liver complaint, kidney trouble, pulmonary disorders, catarrh, headaches, dyspepsia, diarrhœa, giddiness, weak heart, spinal curvature, feeble circulation and rheumatism.

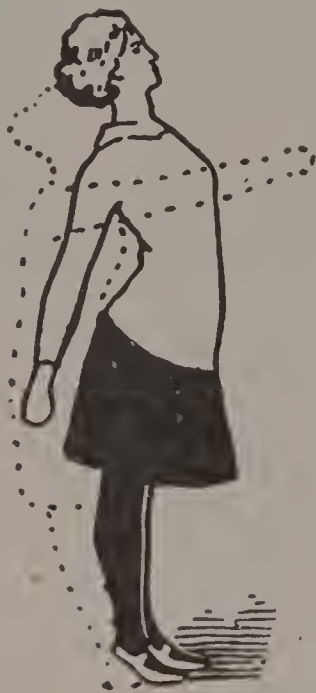
* From American College of Physical Culture and Jiu-Jitsu.



COPYRIGHTED 1905 AMERICAN COLLEGE PHYSICAL CULTURE .

A very pronounced case of obesity. This student when enrolled in the American College of Physical Culture and Jiu-Jitsu had no chest development whatever.

This is one of the series of prescriptions given for increasing the bust in the particular case shown on the opposite page.



READY POSITION.

Arms extended in front of body. Heels on ground and knuckles upwards.

MOVEMENT.

(1) Carry the arms downwards and backwards (in a parallel groove) as far as possible, pressing the hands well back ; at the same time rise on the tip-toe ; press the chest forward, inhaling to the utmost. (2) Pause a moment and return to ready position, completely emptying the lungs. Count 1, 2 (inhale, exhale).

NOTE:— This is a powerful breathing exercise and should be done slowly. Inhaling should take place the whole time the hands are traveling from front to rear. The movement of hands forward should be done smartly, forcing the air out of the lungs quickly.

Principal muscles used : Deltoids, latissimus dorsi, rhomboideus, gastrocnemius (or calf), quadriceps, pectoralis major, serratus magnus.

* From American College of Physical Culture and Jiu-Jitsu.

TABLE	
DAYS	TIMES
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	



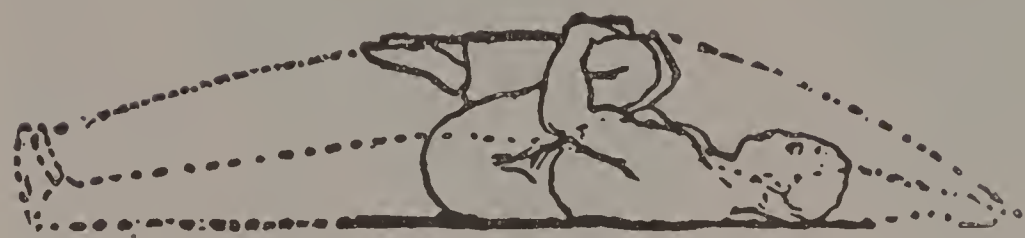
Copyrighted, 1905, American College Physical Culture.

The first portrait is of a lady pupil who suffered from indigestion in a very chronic form.

The second picture illustrates the perfect figure of the same lady after four months' treatment of ten minutes' exercise each day with the methods of the American College of Physical Culture and Jiu-Jitsu.

CURE FOR CONSTIPATION.

SAMPLE PRESCRIPTION.



READY POSITION.

Lie flat on back, arms stretched above head and in line with body.

MOVEMENT.

- (1) Draw up both knees, clasp them with the hands, press them well to the chest, exhaling.
- (2) Extend the legs and arms, inhaling deeply, and repeat. Count 1, 2 (inhale, exhale.)

NOTE. — This exercise affects the abdominal muscles, and the digestive organs, also the lungs and legs, and should be done SLOWLY, emphasizing the breathing. In the extension of the leg contract the quadriceps firmly by pressing the heel forward.

Principal muscles used : Rectus abdominis quadriceps and biceps of thigh, gluteus maximus, deltoids, pectoralis major, serratus magnus and lungs, etc.

* From American College of Physical Culture and Jiu-Jitsu.

TABLE	
DAYS	TIMES
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	

The Whitely Exerciser.

As this method is introduced with the strictly American idea of furnishing "the shortest route and fastest time" to health and strength, you may expect some radical departures from older methods.

After your regular day's work is ended, you are not asked to do another each evening, performing feats of strength which tax your endurance to the utmost, and leave you "all broke up" the next day. It has been demonstrated that heavy gymnastics, like numerous other ponderous and unwieldy things of the past, are by no means the best. On the contrary, exercises that admit of numerous movements of the muscles **WITHOUT GREATLY TAXING THE VITAL FORCES**, produce larger development and better quality. Muscular tissue built in this way is not only strong, but quick and active, while that developed with heavy weights is hard and slow.

You are not required to waste time in the preliminary study of an intricate system of movements. For brain-workers, a system that requires study is directly at variance with one of the prime objects of muscular exercise, namely, entire relief from mental strain. But, if you don't have to think, it is because someone has done it for you; for the exercises, howbeit simple, are scientifically arranged to bring into action every muscle in your body.

Dumb-bells and Indian clubs exercise the muscles of the arms and shoulders but do not reach the muscles that pull the arms downward.

The Whitely Exerciser is at once complete, compact and noiseless; requiring no floor-room, no changing of weights, for it adjusts itself to any degree of resistance; no buckling of straps or other paraphernalia; can be put up in two minutes without the use of a single tool, and if desired can be removed from the hooks and put out of sight in a moment and readjusted for use just as quickly. It imparts an easy, gliding motion, necessary to successful development.

It is equally adapted to ladies, gentlemen and children.

Directions for Putting up. — The Exerciser will work at any angle, so select any place in your room that permits an unobstructed floor space in any direction. Better work toward a window that will permit of ventilation from above than away from it.

Standing on an ordinary chair, screw two hooks into the door or window-frame on a level with your nose and from two to six inches apart as best suits the form of the woodwork; lower hooks two inches from the floor, or in the floor if you are short of stature.

Should there be a sill or other obstruction to be avoided, put the lower hooks in the floor at sufficient distance from the wall to make the cords clear the obstruction.

The middle pulley is purposely made without a swivel to prevent

twisting of the cord when in use, so run out any twist between it and the pulleys attached to the triangle before putting it on the hook. The pulleys on the triangle are swiveled that the Exerciser may adjust itself to any movement or work in any direction, and if the cords twist together between them and the handles a pull on the latter will untwist them.

The rubber cord, or rather cable, is calculated to withstand unlimited use and a much greater tension than required for ordinary exercise, but don't, on that account, abuse it unnecessarily.

Don't use a cord that is too strong for you. If you do you will be exhausted but not benefited by your exercise. The cords are made of various strengths, be sure you obtain one adapted to you; that is, one that pulls easily when close to the Exerciser. As you grow stronger, you have only to stand a little further from the Exerciser to obtain a resistance suited to your increasing strength.

It is not how much you pull, but how often, so use no more force than is agreeable.

If your exercise is too vigorous or too heavy, you will be exhausted before you can complete it. It is better to exercise all parts of the body a little than a few much. If you are sick or weak, exercise very moderately, and stop the moment you feel the least exhausted. If well and strong, be moderate for the first week or two, or exercise will make you sore. When a muscle is tired it hurts, and to force it beyond that point is harmful.

Exercise when you have time for it. Not for an hour after meals, certainly, unless it be very moderately. After eating, your stomach needs all your force, and much of your blood, which under exercise would be drawn to the muscles.

Perhaps the most convenient time to exercise is just before retiring, as it puts the body and brain in condition for refreshing sleep. Sedentary people should keep the apparatus in the office, if possible, to exercise when they feel the need of it,—that is when your brain is tired, and your thoughts refuse to flow freely. A little vigorous exertion will renew the supply of blood in the brain, and with new blood will come clear thought and new ideas.

A tired feeling is not always due to exhaustion; it is more frequently due to congestion of the blood in some particular spot, and is quickly dispelled by exercise. Make the attempt, but if the tired feeling does not soon disappear, you will understand that it is true exhaustion for which sleep is the only remedy.

Make up your mind that you will exercise, be it midnight or morning, when you retire, and you will be repaid for it in the quality of sleep that follows; though at such times, unless excited, it is well to somewhat curtail the amount of each movement, or you will tire before you finish the list. At such times, also, some regard to the muscles that have been used during the day is advisable; but when you have time to exercise each group of muscles completely, this matter

will regulate itself, for those that have been used during the day will tire sooner than the others. Nature puts a limit to muscular development, beyond which no amount of exercise will force it, and it is therefore only necessary to exercise all the muscles regularly, to eventually bring the entire body to a symmetrical shape, and the highest stage of development.

If practicable, take your exercise in the condition indicated in the cuts ; for at least once a day the body should be free to act without restraint of clothing, and moreover, fresh air is a tonic to the skin which lessens your chances of taking cold.

Fresh air is an indispensable adjunct to exercise, but the room should never be chilly.

Never exercise beyond the ability of the heart to keep pace with you ; palpitation is a sure indication of excess. Exercise only as vigorously as is agreeable, and in keeping with your strength.

Do not exercise long or hard early in the morning, as it is apt to exhaust you before the vital forces are fully aroused, and you do not recover during the day. If you rise as late as half past eight or nine, vigorous exercise is not likely to hurt you, unless you bolt your breakfast, and rush off to work immediately following it.

In making the movements, endeavor to forget you are exercising, and, if possible, imagine you are doing the things the movements indicate.

Exercise No. 1. — *Throwing.* Suspend the apparatus as in position No. 4, grasp the handles with either hand, and make a movement exactly as though throwing a ball or light stone. Having tired the muscles on one side, change to the other and repeat the movement until that side is tired, also.



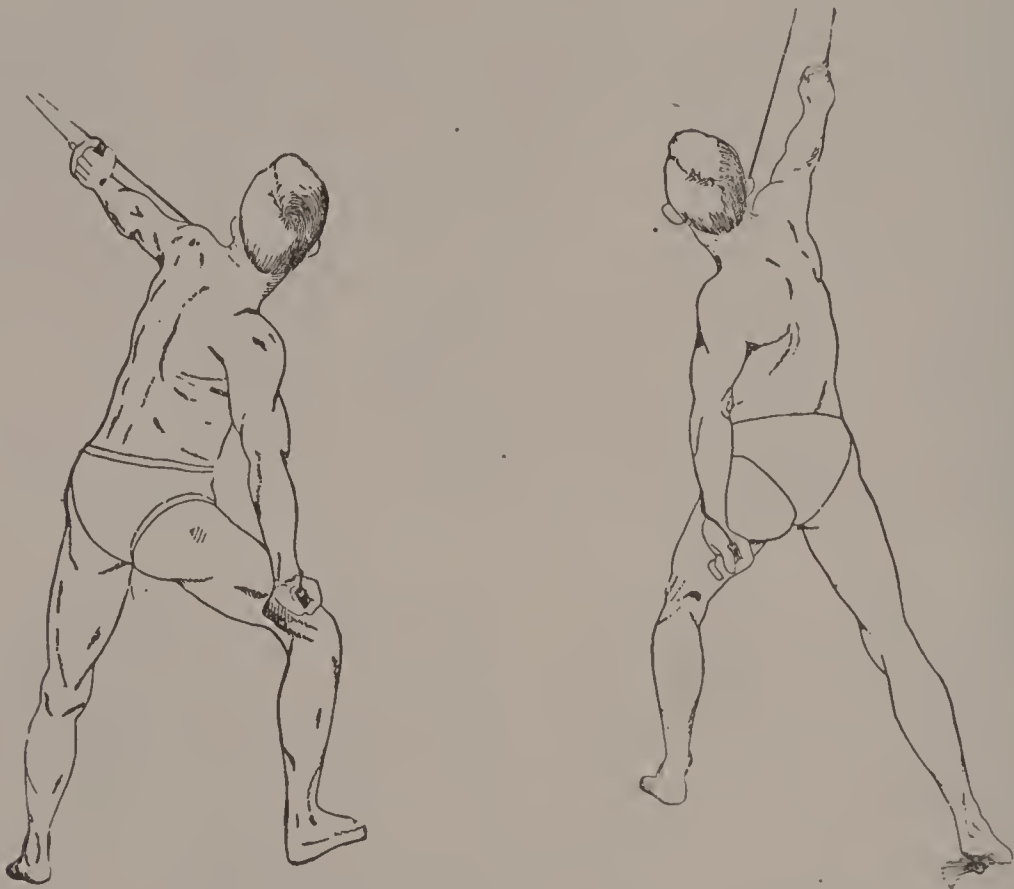
This movement brings into play the muscles in front of the neck, the large muscles on the front of the chest, the muscles on the front

and side of the abdomen, nearly all the muscles of the legs, and broadens the chest. Draw in the breath as you take the first position, and blow it out forcibly as you make the movement.

If the tension is not strong enough with one handle, it may be doubled by taking both in one hand.

Before releasing your hold on the handles relax the tension and give the cords time to untwist. If oiled the swivels will revolve without assistance.

Exercise No. 2. — *Hoisting.* — Take a handle in each hand and make a movement as though hoisting a bucket of pitch or gravel to the roof of a high building.



This exercise brings into action the muscles on the sides of the neck, muscles of the fore-arms, back-arms, muscles of the back that draw the shoulders together, side muscles, and muscles on front of thighs. In making this movement, endeavor to send the “bucket” as high as possible at each sweep of the arm. In doing so, you will draw the arm back and around in a way that is necessary to develop the particular muscles which this movement is intended to reach.

Take in the breath as one hand is drawn down, and as the other comes down, expel it.

Exercise No. 3. — *Suspend Exerciser* as per cut, and use each hand alternately. This exercise strengthens the muscles of the arm, shoulder and thigh. Another exercise is made by turning the back to the Exerciser. Putting the cords over the shoulders, hands on back, then bend forward and back. This movement is particularly intended to reach the large muscles on the front of the chest and abdomen.



Exercise No. 4. — *Swimming and Rowing.* — Exercises the muscles used in swimming or rowing, that is, the large muscles of the back that pull the arms downward and backward. This movement may be made sitting or standing. If made sitting, it is well to spread the



knees as you draw the arms down, and as the arms go up, bring them together. This latter part of the movement exercises the muscles

on the inside of the legs which are much used in swimming. Draw in the breath as the arms go up, and expel it as you draw them down.

This movement is a good chest-expander.

Exercise No. 5. — *Putting the shot.* — Shift the apparatus to position No. 6. Grasp the handle in one hand, and make a movement as though throwing a heavy stone or shot. Draw in the breath as you begin the movement, expel it as you finish. When the muscles of one side are tired, change to the other and repeat the movement.



The exercise expands particularly the upper portion of the chest, exercises the fore-arm and biceps, or front muscles of the upper arm, triceps, or back muscles of the upper arm, the upper portion of the large muscles on front of the chest, and muscles on side of shoulder; also the side muscles of the body, and nearly all the muscles of the legs and feet.

Exercise No. 6. — *Rowing.* — This movement may be made either



sitting or standing, though it is better made sitting. With a handle in each hand, make a movement as you would in rowing: as the body goes forward spread the knees, as represented in the first cut, and as you go back, bring them together as shown in the second.

The breath may be drawn in either as the body goes forward or backward, but as a rule, in any exercise, it is better to take

the breath before the exertion. In this movement be careful to draw the arms and shoulders well back; for rowing, as it is generally performed with the sliding seat, tends to contract the front of the chest. The movement made as indicated in the cuts, or in rowing without the sliding seat, overcomes that objection to the sport. In rowing, we use the muscles of the fore-arm, biceps, back muscles of the shoulders, nearly all the muscles of the back, and the muscles of the back of the neck have considerable to do. With the sliding seat, the muscles in front of the legs do much of the work, but as all the other movements exercise the legs, there would be nothing gained in having the seat for this exercise. In fact, the development of the muscles on the inside of the legs, as is done in the way the movement is here described, is much more to the point; for with the exception of exercise No. 4, these muscles have had little work.



Exercise No. 7. — Lie down on floor. Head to Exerciser. Lift hands straight over head, touch the floor and sink to hips. Raise body to sitting position without lifting feet from the floor.



This exercise plays particularly on the front muscles of the shoulders, and some muscles in the back, and is specially designed to strengthen the abdominal muscles.

Inhale the breath fully as the arms ascend, and expel it forcibly as they descend.

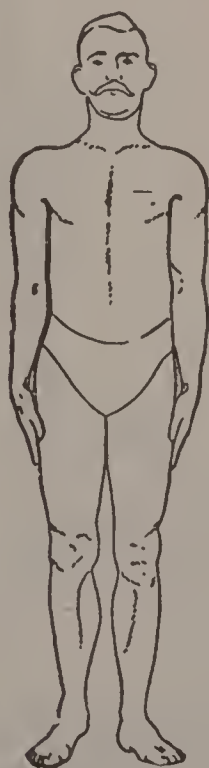
Exercise No. 8. — *Bowling.* — Suspend one handle again as in position No. 6 ; with the other hand free, make a movement as though



to throw a ball as in bowling. Draw in the breath and expel it in the forward movement.

This exercise develops the muscles of the arms and legs.

As a finishing touch, this old-fashioned exercise for expanding the chest is given. From a position with the hands down at the sides, raise the arms laterally to a position high over your head, keeping



the elbows straight. Inhale all the breath you possibly can as the arms go up ; bring the arms down again to the position first indicated, but retain the breath for a moment after you have finished the movement.



EXPLANATION OF (colored) ILLUSTRATION OF HORSE

1. Brain.
2. Small brain.
3. Nostrils.
4. Spinal column and ribs.
5. Jaw.
6. Tongue.
7. Trachea or windpipe.
8. Gullet running to stomach between the lungs.
9. Lungs showing bronchial tubes.
10. Heart. Is directly under the sixth rib, but in the drawing it is moved forward, to show bronchial tubes in lungs.
11. Liver.
12. Stomach.
13. Spleen.
14. Left kidney.
15. Large intestine.
16. Small intestine.
17. Bladder.
18. Rectum.
19. Scrotum.

VETERINARY.

A FULL DESCRIPTION IN PLAIN LANGUAGE OF THE

Anatomy, also the Diseases,

OF THE

HORSE,

CATTLE,

SHEEP,

AND DOG,

GIVING ALL THE SYMPTOMS OF THEIR DIFFERENT
DISEASES, AND IMPARTING THE KNOWLEDGE OF
DISTINGUISHING ONE DISEASE FROM ANOTHER, TO-
GETHER WITH INVALUABLE PRESCRIPTIONS AND
THE LATEST DISCOVERIES IN VETERINARY MEDICINE

For their Prevention and Cure.

BY

CHARLES P. LYMAN, F.R.C.V.S.,

President United States Veterinary Medical Association,

Veterinarian-in-Chief to the Agricultural Department at Washington, D. C.,

Member Massachusetts Veterinary Society,

Fellow of Royal College of Veterinary Surgeons, England,

*Professor of Theory and Practice, and Dean of the School of Veterinary Medicine in
Harvard University,*

Secretary of the Board of Cattle Commissioners of the Commonwealth of Massachusetts.

VETERINARY MEDICINE.

WHILE it cannot be said to be absolutely true that a full knowledge of the histories and biographies of the institutions and men who have preceded us can be taken as an infallible guide in our actions, it is certainly true that the indications furnished by such studies are exceedingly apt to give us the surest general guides that we can have. That experience is the best teacher is proverbial, but it is also equally true that it is the most costly of teachers; therefore a good knowledge of the recorded experiences of others may be of considerable economic value to us.

There is evidence that the Egyptians practised veterinary medicine and surgery in very remote times; but it is from the Greeks that we first obtain any definite information in regard either to veterinary or human medicine, in antiquity. The writings of Hippocrates, about four hundred years before the beginning of the Christian era, afford excellent evidence of the study of medicine both among animals and man.

From this onward, for hundreds of years, the practise of veterinary and human medicine proceeded hand in hand, descending through a line of men whose names are even now familiar, all of whom industriously studied diseased animals and men and wrote, to great length, the results of their work. Therefore it is seen that veterinary medicine of antiquity was really a system of medicine applied to both men and animals, oftentimes by the same individual.

It was then, as it is to-day, true, that during all of the long period, the followers of medicine at different times became divided into various sects, cults, or schools; each of which was able to defend the new positions taken by them with more or less plausible statements, the relation of which would be entirely outside of the present purposes.

From the third century onward, veterinary medicine began to have a literature and regular practitioners of its own, especially in the service of the Roman army; and it was not until during the fifth century that the first indications appear of the introduction of the absurd and irrational practises which were, for so long a time, causes of discredit to the veterinary art.

In excuse for this, however, it may be said, that this time was that of the beginning of the so-called Dark Ages, or period of intellectual darkness, in Europe, during which medicine and much other

scientific knowledge was maintained, until nearly at the end of the fifteenth century, by no more than a thin connecting line, kept for the most part by the monks, who certainly, while not adding anything to the ancient knowledge, allowed it to become thoroughly mixed with magic, demonology, and superstition. Therefore it is that toward the end of the fifteenth century Anglo-Saxon animal medicine, from which that of the present day in America has almost entirely descended, was made up of a mixture of magic, superstition, and the remnants of the ancient science.

Because, apparently, at about this time the King of England and others of wealth in that country began to desire better horses than were then available to them at home, and to have these animals better cared for, a farrier of repute was imported from Italy to give instruction to this end. This is interesting as giving the time of the beginning of the application of the term Farrier to those who had theretofore been "horse doctors"; just as since then the term Veterinary Surgeon has supplanted that of Farrier, and within a few years the term Doctor of Animal Medicine has begun to be used instead of "Veterinary Surgeon." It may be that we are slowly working back to the condition of the beginning; and that the terms Science of Medicine and Medical Doctor will come into common use and be understood to mean what it did in the beginning; that the graduate of a medical school is capable of practising his art and science upon either the animal or man, as he may elect; much as now the physician divides practise among men into several various specialties.

Further facts concerning the more modern progress of medicine and the different schools of practise can be advantageously read by those interested in the subject, in the earlier part of this volume, under the title of "Progress of Medicine and the Different Schools."

Definitions.

While no attempt will be made here to treat this subject exhaustively, it is still felt that, for those who really care to make themselves fairly well able to distinguish one disease from another, at times, some idea should be had of what is meant by the terms and what their presence generally indicates.

A *Symptom* is a sign of disease, obvious to all who see the animal; the symptoms of some disorders are much more noticeable than those of others. All symptoms, in animal practise, are objective, that is, they must be found as a result of a person's observation of the ailing animal; he cannot describe his own feelings or state just where the pain is located. A good or bad observation of these, results in a good or bad *Diagnosis*, that is to say, a valuable or a valueless opinion as to what the matter is; and this is by far the hardest and most important part of the whole matter, for it is a comparative easy process, the name of the disorder having once been ascertained without doubt, to find out how the case should be treated, what medicines or care are likely to give the best results. To help this there are a certain set of what, in all animals, may be called *general symptoms*, a full understanding of which will very much simplify the whole matter and generally point to the part of the body, at any rate, in which the disorder exists. These general symptoms will be found by:

First. A close observation of the expression of the face and the position in which the animal places his body when he is allowed to do what he wishes.

Second. The condition and color of the membranes lining the nostrils and the eyelids.

Third. The pulse.

Fourth. The movements made in breathing.

Fifth. The condition of the surface of the body and the extremities, *i.e.*, feet, legs, and tips of the ears; and

Sixth. The internal temperature of the body.

Expression. — The face may show anxiety, alarm, or be "pinched." This indicates some disorder accompanied by pain, the present importance of which is shown by the expression; as anxiety; a newly realized pain of slight degree; alarm; an increased and considerable pain; while the pinched expression indicates either very severe or long continued suffering.

Appearance of Membranes. — This, in health, is a palish red and should be examined, so that its healthy color may be easily recognized. *Increased redness* is a sign of over-excitement of the blood circulation and, unless it be due to recent exercise, which is a natural cause, indicates fright, great excitement, anger, overwork of the heart, or general fever. Small, deep red scattered dots, or even rather larger patches of red, indicate the presence of something that has changed the quality of the blood; some disorder of the blood. These diseases generally arise from unhealthy surroundings, poor quality of food, or a contagion.

Yellowness indicates a disorder of the liver either functional or organic, in which some of the bile is not fully excreted from the blood. Organic disease, *i.e.*, disease of the liver itself, is comparatively very rare; the symptom generally means some disordered condition of the digestion, and is helped by a good physic, epsom salts in preference.

A Livid or Bluish Color. — A condition of the blood in which there is an insufficient amount of oxygen; it may arise from any cause which prevents the free access of air into the lungs; as bronchitis, pneumonia, various troubles in the throat or nostrils, too much pressure on the windpipe as from a high breastplate, a small collar, a tight cribbing strap; certain cases of heaves, especially in an animal that has eaten a large amount of hay or grass. The slaty color is often seen in the nostrils of old horses, where its existence may be simply due to old age and a consequent poor circulation of the blood.

Pallidity, Bloodlessness, Anæmia, and General Debility. — If it happens suddenly, it is due to a large loss of blood; as from an internal or external hemorrhage; in which case the extremities will be cold, the pulse fast, and the animal may yawn more or less.

The condition of the tongue and mouth is occasionally of considerable importance in helping to point out the seat of trouble. Over-redness of it indicates an irritable and congested condition of the digestive organs. Around the free borders of the tongue and upon its surfaces, more particularly the under one, large, irregularly shaped but very shallow patches are occasionally met with, which are due to some form of indigestion in the stomach probably. In some other forms of dyspepsia there will be seen a slightly foul or soapy condition of the membranes in the mouth, although the foul condition of the mouth and tongue so commonly seen in human medical practice is not by any means so common in animals; its nearer approach being in the dog.

Dryness of the Mouth is often indicative of inflammatory diseases, more particularly those affecting those of the digestive organs.

An Over-moist Condition of the mouth arises from an over-secretion by the salivary glands, and may be due to catarrhal disease,

inflammation of the membrane at the extreme end of the cavity of the mouth (pharyngitis), paralysis of the muscles of swallowing (not particularly uncommon in the horse), the presence of sharp teeth (in horses), or some foreign body which may have become lodged between the teeth, in the cheek, under the tongue, or some other part of the cavity, as a thorn from the hay, a sliver of wood, piece of bone (in dogs), etc.; nausea, choking, certain weeds in the hay or pasture, and other conditions which may or may not be easily discoverable. In these latter conditions in horses or cattle the over-secretion can be controlled by the proper administration of belladonna.

Sudden pallor of the mouth and tongue, with coldness of the body surface and extremities denotes approaching death from hemorrhage. A soft, flabby tongue with perhaps a little swelling of it, leaving impressions of the teeth upon its sides, indicates a chronic indigestion, and will be best treated with a dose of physic, to be followed by a course of good tonic medicine.

The Pulse.

The pulse is more conveniently examined in the larger animals at the artery (the sub-maxillary) which passes under the under jaw bone, in a slight groove which lies a little forward of the turn which the under jawbone makes to go upward toward the joint lying a little below the base of the ear. To find it easily, the finger had best be moved backward and forward under the part described until the little groove mentioned is found, and the artery, feeling like a soft cord, is felt. Then, with light pressure, the finger is to be held still upon the part until the beat of the pulse is felt, when its character and the number of beats per minute can be ascertained. It may also be felt at the temporal artery or, in fact, at any place where an artery comes near enough to the surface and has a bone underneath it which is sufficiently near to the surface to permit of light pressure of the artery against it by the finger. It is better, however, to always use the same artery for the examination, when possible, because this gives a better opportunity for the comparison of the pulse of one animal with that of another; and the touch of the examiner thus becomes better educated. The throbbings of the pulse, felt by the finger, are chiefly due to the fact that the artery expands during the contractions of the heart which pumps the blood, and that it returns to its previous condition while the heart is again filling with blood, coming to it from the veins, in preparation for its next stroke.

The Pulse of the Horse is about forty per minute, but this varies somewhat under conditions of size, age, and breed. The larger or older the animal is the less frequent the normal pulse, while in high-bred horses, as the trotters and thoroughbreds, it beats more frequently, all things considered. So that, under varying circumstances,

it is not at all inconsistent with health to find a variation of ten beats per minute; thus in one animal it may be thirty-five, while in another forty-five, and still both be right for the given animal.

The Pulse of the Cow beats from fifty to fifty-five times in the minute, but the declarations of the pulse in these animals in this respect are not greatly to be depended upon, for, while the animal may be in perfect health the pulse may reach seventy or eighty beats. The act of chewing the cud, the various stages of pregnancy, the activity of the milk glands, whether she be eating considerable grain, or none at all, at the particular time, as well as fatness or leanness of the animal, will tend to cause variations which, even so, may be normal for the given animal at the time.

The Pulse of the Sheep is from seventy to eighty beats per minute and subject to the same variation as that of the cow, but in a much less degree, as will be easily appreciated, without further description.

The Pulse of the Dog ranges from eighty to one hundred, depending upon his age, size and breed, as already described.

In health, and when the animal has been at rest for some time in a medium temperature, there is nearly a uniform relation between the frequency of the pulse and of the breathing movements, the proportion being about one respiration to three or four pulsations.

There are four variations in the character of the pulse which should be noticed here:

First. As regards the number of beats within a given time: *frequent* or *infrequent*.

Second. As regards the relative time which seems to be occupied by each *beat* and the interval between them: *quick* or *slow*.

Third. As regards the apparent dilatation of the artery: *large* or *small*.

Fourth. As regards the compressibility of the artery by the finger: *hard* or *soft*.

Symptoms Afforded by the Variation in the Pulse Beats.

The Frequent Pulse. — Any increase in the number of beats beyond the normal, for the given animal, indicates some degree of excitement of the heart, which may be due to simple exercise, in which case it is normal and amounts to nothing as a symptom of disease. Otherwise it indicates a fevered condition; a long continued pulse of this kind shows a serious illness, in which instances the increasing gravity of the case will be indicated not only by the increase in frequency, but, as the weakness of the animal increases,

the pulse will become smaller in volume, thus showing that the heart participates in the general weakness, which, in its turn, is due to the cause which has given rise to the fevered condition.

Excessive evacuations of blood, urine, or from the bowels, will cause a greater frequency of the pulse, which generally bears a direct relation to the danger of the situation.

The Quick Pulse indicates nervous irritability or debility, and, if continued, little strength. When a quick beat followed by an abrupt cessation, with a comparatively long interval, is present, it indicates extreme nervous irritability or, rarely, an organic disease of the heart.

The Slow or Long Pulse indicates a plethoric condition of the body; a *functional* disturbance of the heart due to certain stomach troubles, in which cases the pulse beat is often lost, at varying intervals (irregular intermittence). When accompanied by infrequency, some disorder of the brain, as compression of that organ, from some cause or other, and occasionally to organic heart disease. These conditions are not commonly alarming and may generally be relieved by a good dose of cathartic medicine. If organic heart disease be the cause, the plethoric condition of body is not usually present, in addition to which the beats of the heart will commonly be found to be in excess of those of the pulse.

A Large Pulse indicates a prolonged and forcible contraction of the heart from some cause, to be ascertained by further examination. It may be associated with either strength or feebleness of the pulsations. In a large, strong pulse the artery is not easily compressible under the finger; it indicates the first stages of some painful disorder, as founder in the feet of horses. In a large, feeble pulse there is a weak impulse, and although the full size of the artery is easily felt, its walls are quite compressible under the finger; it indicates either general debility, as in anæmic or bloodless conditions of the body or debility of the heart.

The Small Pulse is recognized when the artery seems full, although the impulse is felt to be like a very small cord or wire running through it. This condition may result from some internal congestion, as of the lungs, from feeble contractions of the heart, or from great hardness of the arterial coats, as in lockjaw or strychnine poisoning.

A Hard Pulse is that property by which the artery resists compression and results from a contraction of the *muscular* coats of the arterial walls. Hardness of the pulse is often associated with smallness; it is then termed corded, wiry, or thready; this condition is often met with in the earlier stages of inflammatory diseases, particularly during the occurrence of a fever chill; in all dangerous inflammations of *serous* membranes, as that of the membrane lining of the heart (endocarditis), or the abdominal cavity (peritonitis), or covering the uterus (metro-peritonitis).

It may be shown in cases of hypertrophy of the left side of the heart and so be present independently of any inflammatory disorder.

A Soft Pulse, readily recognized by the feebleness of the impulse and compressibility of the arterial wall, is generally accompanied by smallness, and indicates oncoming death as a result of some progressive exhaustive disorder; the heart's impulse is slight, the tensility of the artery is diminished, and the volume of the blood is small.

In order to have a strong, good pulse, there must be vigor of the heart; steady resistance to pressure on the part of the arterial walls, and enough good blood in the body. There may be a sharp, forcible beat, but if this is not sustained by a certain amount of subsequent pressure, it indicates irritation rather than energy. A contracted pulse, however sharp the impulse, cannot be called a strong one. A strong pulse is considered a sign of an active, vigorous state of the system.

The pulse of a dying animal is nearly always small, very rapid and thready; without force or fulness. It may become imperceptible before death; a small pulse of over one hundred and twenty to the minute is difficult to count with precision.

Pulsation of the Veins is often seen in the jugulars of cattle, especially during rumination and is quite compatible with health. If the neck of a horse having a lean neck is extended, by lifting his head up from the chin considerably, there may be an appearance of a jugular pulse; this, however, arises from a beating of the artery (carotid), lying immediately underneath the vein, made visible by the parts being tensed and pressed together. Otherwise pulsation of the jugular veins is ordinarily explained by an insufficient closing of some of the valves of the heart (tricuspid); thus allowing a certain amount of the blood, coming to the heart, to be sent back into the veins. This is an organic disease of the heart and, practically, incurable.

Symptoms Afforded by Variations of the Respiratory Function.

Breathing may be quickened, difficult or laborious, slow, thoracic, or abdominal; and be attended by such signs as sneezing, coughing, sighing, or yawning. The breath may be hot, as in some internal inflammations; or cold, as in cases of great prostration; bad smelling, as in abscess or gangrene of the lung, occasionally during convalescence from bronchitis; from catarrh; from certain diseased bones of the head; from bad teeth; or from certain disordered conditions of the stomach, throat, tongue, gums, or cheeks.

Quickened Breathing indicates recent exercise or excitement; fevers, pain, or anything which accelerates the circulation of the blood; or prevents the free access of air into the lungs.

Difficult Breathing (dyspnœa), may depend upon pain, as in pleurisy, disease of the muscles between the ribs; wounds or injury to the chest, external as well as internal.

Anything which diminishes the free use of the nostrils, larynx, or windpipe may make the breathing exceedingly difficult and be accompanied by such sounds as those designated by the terms blowing, roaring, or whistling. In heaves in horses the breathing is often made distressing and noisy by exercise. All diseases of the lungs by which any considerable portion of these organs are made impervious to air, or through which a dropsy into the cavity of the chest (hydrothorax) takes place, give rise to this symptom.

Difficult breathing is not always to be regarded as indicating disease of the respiratory organs *only*, for in many acute diseases, entirely unassociated with those organs, the breathing not only becomes quickened, but labored and difficult to an extreme degree. It should always, however, be regarded as a symptom of importance, not only as pointing clearly to certain diseases, but as indicating grave alterations in the condition of the blood, or in the functions of the nervous system. Diseases may be seriously aggravated, and a tendency to a fatal termination given them by difficult breathing, owing to the decreased oxygenation of the blood.

Snoring or Stertorous breathing arises from a relaxed condition of tissues at the posterior part of the mouth, and, when associated with disease, is a symptom of some gravity, showing the presence of a disorder because of which the brain is not performing its proper function; not necessarily disease of the brain. So long as the respiratory movements remain fairly strong and frequent it does not indicate *immediate* danger, but when the movements are slow, that of inspiration delayed, the general sensitiveness will be diminished even to complete insensibility (coma), and death will be near.

Slow Breathing, if marked, indicates some disordered condition of the brain.

Thoracic Breathing denotes that the muscles of the abdomen (belly) are prevented from participating, to their usual and natural extent, in the performance of the respiratory movements. The condition indicates some trouble within the abdominal cavity, or painful injury to its walls. Its presence suggests dropsy into the cavity, which may mean organic disease of the liver or kidneys, or other less frequent but important organic disorders; anæmia, acute inflammation of the lining membrane (peritonitis), wind colic, large abdominal tumors, or pain from injuries or wounds of the abdominal walls, as from a hard blow given with a club, or laceration of the skin or parts immediately beneath, as from a barbed wire or other cutting or tearing instrument.

Abdominal Breathing is present when the movements are performed, as fully as possible, by the muscles of the belly, the ribs being

held as still as they can be. Its presence indicates some painful disorder or an obstruction within the chest, as pleurisy, or dropsy; or painful condition of the walls, as from injuries to them, or inflammation of the muscles between the ribs.

Irregular Breathing indicates a condition in which the usual harmony between the inspiratory and expiratory movements ceases to exist. It is seen in heaves in horses, certain cases of chronic bronchitis, asthma, and, less frequently, other disorders.

Cough. — Of this several varieties and sub-varieties are described. Of these there are two greater divisions: the moist and the dry.

The Moist Cough, sufficiently described by its name, is present in the *later* stages of catarrhal fever and bronchitis, as well as in any cases wherein the natural fluid secretion of any part of the air passages is increased.

The Dry Cough is generally present in the *early* stages of catarrh, bronchitis, or pleurisy, as well as irritation arising from any marked disturbances of the membrane lining the air passages; in dentition, when there is a loud, dry cough, frequently repeated, at intervals (spasmodic).

Cough does not always indicate diseases of the air passages, for it is often present in certain forms of indigestion, or in animals, dogs and horses principally, that have worms, as well as from choke and less common causes. These are all called sympathetic coughs.

External Temperature.

The symptoms afforded by the apparent variations in temperature of the external surface of the body are few, but are generally noted as being very good aids in helping to locate the disorder. Cold or cool extremities indicate an improper and too small blood supply at the part; and, when occurring persistently, it becomes a symptom of some importance, as indicating a tendency toward internal congestions or weakness of the action of the heart.

Sweating, aside from that which properly comes from exercise, or too much clothing, indicates pain, and, if in patches, pain or impaired nervous function of the part.

Internal Temperature.

Clinical thermometry, as it is called, is the means by which the internal temperature of the body of any animal may be easily measured; and a knowledge of how to understand the indications thus furnished are extremely valuable in many instances, as they often give the earliest notice obtainable of certain oncoming disorders, as

well as being an early indicator of progress, for good or bad, in a patient under continued treatment.

Two facts justify its application to practise: the invariability of the temperature in a healthy animal, and its variations from this in those who are the victims of a wide class of disorders.

A normal temperature does not necessarily indicate health, but all those animals in which the temperature either exceeds or falls short of the normal range, for any length of time together, are not healthy. The ranges of temperature in disease which may occur in the horse, and still be followed by recovery, is from ninety-five to one hundred and eight; in cattle, from ninety-five to one hundred and ten; and in dogs, ninety-eight to one hundred and five.

Unappreciable influences which do not at all disturb the temperature of a healthy animal, quite frequently derange that of the sick one before they affect the sickness in any other observable degree, until some time afterward. Thus we are furnished with a notice of coming trouble and can take early measures to prevent bad results.

In this same direction the discovery of a constant abnormal temperature, in an animal which in all other ways is apparently healthy, is an early means of discovering or confirming the suspected existence of latent disease. This is valuable, for instance, in a stable of horses, among which a case of glanders has been found, the use of the thermometer for a few days, subsequent to the discovery, among the remaining horses, although they appear to be in perfect health, will give early opportunity for removing any others that may have been attacked by the contagion, and so help materially in limiting the spread in that stable.

A normal temperature during sickness is only a relative sign, which will exclude certain classes of disease; its value being in this only. Certain abnormal temperatures are generally associated with a certain type of disease. A rapid increase of the heat of the body, and decrease of the appreciable surface heat is associated with chills and generally is a sign of an oncoming, strong attack of fever. A protracted temperature of one hundred and two or more is usually accompanied with dulness, thirst, frequency of the pulse, and increasing thinness of the body.

Any considerable diminution of warmth in the extremities, as the legs and ears, with a high temperature, or with one below the normal, is expressed by a small pulse, sunken eyes, and, if it be maintained, collapse and death. An elevated temperature, *whatever its cause*, has by itself an influence on the functions of the general system. When it is only slightly raised, its action may not be appreciated; but when it is, and remains, considerably raised, the most evident effect will be a loss of flesh; the pulse and respirations will be faster and the brain may exhibit functional disturbances; the secretion of urea increases, making the urine heavy and of a dark color; and there is a tendency to local congestion and fatty degenera-

tion of various organs; and, as already intimated, we know that the continuance of life is impossible with certain continued elevations of temperature.

A clinical thermometer is obtainable, at a small cost, from most any druggist, who will also gladly explain the proper method of using it. All internal temperatures, in animals, are taken by inserting the wet or well soaped thermometer into the rectum, for about two thirds of its length, and letting it remain there for three minutes. An instrument of four inches, or even a little less, is as good for use among animals as one that is larger. Care must be taken to see that the mercury column is properly shaken down just before it is to be used.

General Diseases Common to all Animals.

Morbid State of the Blood. — A nutritive fluid circulates through the tissues of all organized life. This liquid, which is essential to life, is known as the sap in plants, and the *blood* in animals. The sap is probably simply nutritive; the liquid flesh, as the blood has been called, is a nutrient and something more, for it is also the means by which some of the used-up materials are removed from the system, as it flows through the liver, kidneys, lungs, etc. The characteristics of the living animal organism are ceaseless change and ceaseless waste. Directly it begins to live it begins to die. In the blood, as in the different tissues, the process of decay and regeneration, of destruction and reconstruction, only terminate with the extinction of vitality. During action the tissues waste; during repose they are nourished and the waste repaired. Hence an animal must have pure air, good sound food in proper quantity, pure soft water, and a proper amount of exercise, rest, and sleep, in order that he may have a due supply of good nutrient blood, to be distributed to the various tissues for their healthy, proper nourishment. "The blood is the life"; good blood is healthy life.

In early life the amount of this nutrition absorbed by the various tissues of the body is greater than the expenditure of used-up tissues; hence there is a gradual, healthy increase in weight. But in old age this operation is reversed, until the means of repair are at length exhausted; used-up material is thrown off, new healthy material does not take its place, and the animal dies of old age.

Something of the same thing happens in disease, the early operation of which is to upset the normal equilibrium between supply and waste; the tissues of the body continue to waste, in an excess, which is not removed; useless or poisonous agents then become generated within the body, from this retention, and sickness of more or less moment results.

Life is only to be maintained by the circulation of pure arterial blood; and whether no blood circulates through the arteries or only

that which has become impure and contaminated from various causes, the result will sooner or later be the same; the death of the animal.

When no blood circulates the death takes place from fainting (syncope); and this is of two kinds. First, *anæmia*, when there is a want of the due supply of blood to the heart, as is witnessed in fatal hemorrhages. Second, by *asthenia*, when there is a failure in the contractile power of the heart, seen to occur from the action of certain poisons, intense terror, from overdoses of electricity, concussion of the brain, as well as certain forms of apoplexy. Death may also take place from a mixture of these two causes, as may be particularly noticed in fatal cases of starvation and lingering disorders.

Death may also take place from the circulation of venous blood through the arteries, and this may result in two ways: suffocation (apnœa) when the access of air to the lungs is prevented, as in drowning, strangulation, choking, immobility of the respiratory muscles from a bad case of wind colic, pneumonia, when a large portion of the lung tissue has become solidified, dropsies into the cavity of the chest, etc.; and *coma*, in which, although the air passages are free, the muscular movements required for respiration cease, owing to insensibility produced by some trouble with the brain, as milk fever in cows; cerebro-spinal meningitis in horses and dogs; some forms of distemper in dogs; as well as in some other disorders not so frequently met with.

Thus in death by apnœa there is, successively, impeded respiration, the circulation of non-oxygenated blood, and insensibility; while in coma, the order of the phenomena is reversed; there is first insensibility, followed by a cessation of the muscular movements of the chest walls; and the consequent circulation of blood which has not been made "arterial," *i.e.*, oxygenated.

The blood may be described as being an albuminous fluid, charged with various salts holding the elements of fibrin in solution, and containing both red and white globules (corpuscles). Its specific gravity is high; the extremes, compatible with health, will vary from 1050 to 1059, as measured with distilled water at 1000. The gravity is diminished by bleeding, anæmia, or albuminuria; while it is increased by conditions inducing excessive watery discharges either from the bowels or kidneys. It is most probable that the average relative weight of the blood to that of the body is about as one to fourteen, the maximum being found as the digestion of a hearty meal is drawing to a close. The blood-vessels of an healthy adult horse, of one thousand pounds weight, probably contain about seventy-two pounds of blood.

The blood receives matter from three sources: the atmospheric air through the lungs; the digestion which takes place in the alimentary canal; and the secondary digestion, as that process has been called, by which the waste tissues of the body are absorbed, to be discharged from the economy.

In return it furnishes material for building up the tissues, for forming the secretions, while it also warms every part of the body. Hence whatever interferes with the process of digestion, or respiration, with the excretory organs, as the bowels, liver, kidneys, and skin, as well as the healthy condition of the nervous system, will affect the composition of the blood and so induce a disorder of more or less gravity.

Plethora-Congestion.—Is fulness of blood. When the blood merely exists in too great a quantity in one or more of the organs or tissues, there is said to be a partial plethora or congestion of the organ or tissue affected, in which case there is no increase in the total amount of blood or any of its constituents in the body.

If an organ or a part of any living body becomes irritated from any cause, as from proper exercise, there is an increased flow of blood to that part. If the irritation is carried beyond that which is natural and proper to the part, as from “catching cold” in the lungs, or from a strain of a tendon, the blood-vessels then become unable to pass the blood through them properly; as a result, swelling takes place, that is, there is an active congestion of the *part*. This condition, after a time, either decreases little by little (resolution), ends in slight hemorrhage into the immediate tissues from rupture of the overloaded vessels, or passes on to inflammation.

Again, the circulation of the blood through a part may be sluggish owing to a want of tone in the walls of the veins; this gives rise to what is called a passive congestion there. When the return of blood through a vein, on its way to the heart, is impeded by any pressure upon the vessel from without, it is described as a mechanical congestion. Such a condition may be brought about by a badly fitting collar on a draft horse, or by tying a string around a part of the leg or tail, as is not infrequently done by a mischief-maker.

The condition so commonly found in horses, which seem otherwise to be in good health, wherein the legs swell or a swelling appears along the under part of the belly or around the sheath, generally so easily removed by exercise, is a passive congestion due to want of tone of the veins of the part.

General Plethora — Horses, Cattle, and Sheep.

This is a condition of over fulness of blood of the whole body and generally appears among young, fast thriving animals; more particularly horses, cattle, and sheep.

Causes. — Excess of some highly nutritious food; a need of more exercise; or a mixture of both. To illustrate from my case book: Two brown geldings, one six and the other five years old, had been allowed to stand, without work, for the greater part of the winter in the same stable, with and upon the same food, hay and oats,

as had been given to the other horses which were in full work. When they were first put to work in the spring they had sweat profusely after very little exertion, the respirations were greatly accelerated, and there was a small dripping hemorrhage of dark colored blood from the nostrils. One of them had been markedly dizzy. When seen they were very fat; the membranes much deepened in color; pulse fuller and harder than natural; the surface of the body felt warmer than usual, and the blood-vessels of the surfaces of the shoulders and limbs stood out like cords.

A large flock of *sheep* which were kept by a golf club, for the purpose of keeping the grass close, in the summer, were put into some sheds through the winter and fed upon hay and a large ration of grain, without roots. Early in the spring they became dull, without appetite, and evidently dizzy; several of them died before medical attendance was requested; none after it had been instituted.

Symptoms. — The veins are distended, as shown on various parts of the bodies in short-haired animals; there is great redness of the membranes of the eyelids and nose, the congestion of the eyelids is sometimes so great as to give them quite a swollen appearance. The pulse is large and somewhat hard and resistant to the touch; the animal is indolent and occasionally dizziness is evidenced by his pressing his head (boring) against the side of a building or some other firm object. The respiration slow. If unrelieved, death follows, beginning with *coma*. It is not necessary that the subject of this disorder be fat; a too sudden increase in the richness of the food may produce the disorder before the thin animal begins to lay on much flesh.

Treatment will consist in making proper changes in the food, restricting its quantity or lessening its high quality; seeing that sufficient exercise is allowed or given; and the administration of a good dose of cathartic medicine, which had better be of epsom salts. Bleeding is contra-indicated. The cathartic dose for the various animals may be made as, for a horse of eleven to twelve hundred weight:

R.	Epsom Salts	$1\frac{1}{4}$ to $1\frac{1}{2}$ lbs.
	Powdered Ginger-root	$\frac{1}{2}$ ounce
	Molasses	$\frac{1}{4}$ pint
	Lukewarm water	1 quart

Mix. When the salts are thoroughly melted turn down from a bottle, in the usual way. Give all at a dose.

The same dose may be given to cattle, except that the salts may be from one pound for a small cow to two pounds for a larger bullock.

In sheep: Salts 4 oz. to 6 oz., ginger 1 dram, molasses 1 teaspoonful, and water $\frac{1}{2}$ pint.

Anæmia — Horses, Cattle, Sheep, and Dogs.

Causes. — This is a condition of deficiency or poverty of the blood arising generally in animals that have been deprived of some one or more of the conditions which have already been described as being necessary to the formation of healthy blood. It is also met with in instances wherein the digestive functions have been imperfectly performed; where small hemorrhages repeatedly take place, as well as in the course of many debilitating, or organic diseases.

Symptoms. — The chief of these consist in a great pallor of the membranes. The membrane of the eyelids is pale, clear, and waxy looking, the mouth is cool, and the tongue has an unnatural softness. The pulse is frequent, small, quick, and possibly irregular. Any sudden excitement is not unlikely to produce some degree of palpitation of the heart, which, however, is not material in itself as it is generally no more than functional. The *respirations*, if the animal is perfectly quiet, are not particularly noticeable for any irregularity. The temperature is normal, or slightly below that, in cases which do not depend upon the presence of some other disease. There may be more or less loss of appetite, with indigestion, flatulency, and, in certain instances, even colicky pains. Urine, of a very light color, will be passed in considerable quantities. General debility of the muscular system, which often proceeds to such an extent as to simulate paralysis of the hinder part, may be shown.

In horses dropsical swellings of the limbs is not uncommon, but is seldom seen in cattle. In sheep, dropsies of the cavities of the chest and abdomen are not uncommon. When the disorder is of long standing a general shrinkage of the body (atrophy) sets in, dropsical effusions take place, the breathing becomes difficult, diarrhoea is present, the pulse gets very frequent, irregular, and weak; and the heart's action is rapid and palpitating. Death takes place from starvation and exhaustion, unless some of the mentioned complications have occurred, when there may be fainting, convulsions, or coma.

Treatment. — In simple cases we have the satisfaction of knowing that the removal of the cause, the use of stimulants and tonics, together with a careful oversight of the food to be allowed, quantity and quality, the amount and kind of exercise to be given, and the proper allowance of sunlight and air, will effect a cure, after a time. Remembering that, in simple cases, all of the trouble is directly dependent upon the poor condition of the blood which, in its turn, is due to non-assimilation of the ordinary food, an attempt should be made to begin a correction of matters by the use of such stimulants as sweet spirits of niter, whiskey, or rum for the larger animals, and brandy for dogs, in their proper doses, two or three times daily. While one or other of them often give great benefit in a surprisingly short

time, they will not by any means cure; indeed their use is not well born in some instances, so that it is always better to begin by giving small doses, when, if there is marked increase in breathing or symptoms of uneasiness or colic appear, they must be at once stopped. Iron in some one or other of its forms must furnish the basis of the curative treatment.

In all the animals the tincture of the chloride may be given with good results, especially in those cases wherein the appetite is poor or fickle; begin with rather small doses, three times a day, in about four times its own bulk of cold water; or if the animal will eat a little grain, as oats, the dose may be mixed with a small quantity of them and will be eaten. As the appetite improves the iron must be increased until the full dose is reached, and this should be continued for as long as the animal seems to require it. An occasional dose of raw linseed oil, to overcome the constipating effect of the iron, may or may not have to be given. Or, after the animal begins to show a regular appetite, one or other of the following powders may be given to a horse or cow of ordinary size: Powdered gentian root and powdered sulphate of iron, of each three ounces, well mixed together and divided into twelve powders, one of which is to be given in damp grain feed, morning and night. Or, if the digestion seems to be somewhat impaired or there is marked weakness, this powder may be used: Sulphate of iron, bicarbonate of soda, of each three ounces; powdered nux vomica, powdered golden seal, of each two ounces: all to be made into twelve powders, one to be given twice daily, as above. The same treatment will give good results in sheep, if the doses of each agent are properly moderated. (See table of doses.) For dogs the stimulants may be used; the tincture of iron is good, but it blackens the teeth and the bowels are more apt to become constipated. The best method of giving the iron will be in the use of Blaud's Pills, which is a regular prescription and may be got from any druggist; the dose being the same as for humans, excepting that for very young or small dogs the pill may be cut into thirds or halves. Such a pill should be given three times a day. The food of *dogs* should also be changed at first to milk, with which a tablespoonful of lime water to each tumblerful of milk should be used. This mixture, slightly warmed, should be given in small quantities each two or three hours.

In cases of anæmia, resulting from organic disease, treatment will be palliative at the best; it will not cure.

Blood Poisoning—Horses, Cattle, Sheep, and Dogs.

Pyæmia and Septicæmia, two very important diseased conditions of the system, are *caused* by the introduction into it of putrid matters from one source or another.

Pyæmia is a purulent contamination of the blood, resulting in

the formation of abscesses in various regions of the body. Purulent meaning that which has the character of, or consists of, pus (matter).

Causes. — Inflammation of bone, as induced by a blow upon it; inflammation of veins, which generally only takes place as the result of an injury to parts; certain abscesses, and certain unhealthy wounds, including particularly those about the genital organs, such as may be received by the mother at the time of the birth of the young animal.

Symptoms. — These, at the very beginning, are well marked; first there is a decided chill, followed by a *gradual* rise in the internal temperature, which generally bears a direct proportion to the degree of the chill and runs from one hundred and two, to one hundred and six. Because of the tendency to new formations of pus, at various points within the body, the chills will be occasionally and irregularly repeated; after the first two or three times of this, each chill will be followed by profuse sweatings, which will be followed in their turn by a hot and dry skin. During the chill the temperature will be higher, possibly so high as one hundred and eight; it may then *suddenly* fall even to about normal, soon to rise again, however; *and this intermittent type of temperature readings is almost peculiar to this disorder.* The membranes of the eyelids are rather sallow and, later on, may become markedly jaundiced. The *force* of the heart-beat is markedly diminished at an early period. The *pulse* is frequent, small, and occasionally intermittent, having eighty or even as many as one hundred and twenty beats to the minute, in the horse, with a corresponding increase in the other animals. It does not vary with the variations of the temperature. There is great restlessness and prostration of strength which often proceeds to exhaustion. Digestion is much disturbed, diarrhœa is generally present, and the discharges have a disagreeable character. *Respirations* are hurried, shallow, and always faster just before a chill. The appetite is lost from the first. As death approaches there is more or less delirium, shown by the animal throwing his head from side to side, or beating it upon the floor, if he is lying down. *Coma* gradually follows until the animal becomes entirely unconscious and dies.

When internal organs become sufficiently involved to interfere with their action the fact will be evidenced in complication with the other symptoms. The duration of pyæmia is variable; it is usually acute, lasting from two to ten days; occasionally a case recovers, but the termination is generally unfavorable. If death occurs within the first six or seven days it is due to the intensity of the poison; if later, to exhaustion, unless some important complication, as pneumonia, takes place. There is a form of this disease in horses, resulting from horse ail (strangles), and called bastard strangles when the disorder runs an essentially chronic course. The symptoms are much milder than in the acute form and there are sometimes intervals of apparent recovery, which, however, are usually followed by relapse and, in the end, death.

Treatment. — If recovery is to be hoped for at all it will follow only upon the most careful attention to the case. No such measures as bleeding, physicking, or blistering will be withstood. The great object to be gained is the purification of the blood, and sustaining the strength as well as possible while this attempt is being made. If there is a wound it should be dressed most carefully with some good disinfecting fluid, as one part of lysol to forty or fifty of water and, after it has been thoroughly cleansed, dusting the part over with finely powdered iodoform, and covering it with a little absorbent cotton and a bandage, whenever possible. Do not use iodoform on dogs unless they can be prevented from getting it into their mouths, for it is poisonous if swallowed. If there be an unopened abscess from any cause use warm linseed meal poultices, changing them twice a day until it "breaks" or is ready to be opened; then, after the open abscess has been thoroughly cleansed, treat as for a wound.

There is, perhaps, no other disorder in which so large an amount of stimulants can be administered with so much benefit. Give, therefore, whiskey, rum, or brandy, in as large doses, within the prescribed limits, as the case will bear. Let the animal have good, easily digested food, as ground oats, chopped hay, in which is mixed a little cornmeal, the whole to be moistened with sufficient warm water to hold the meal to the hay. This may be given to horses, cattle and sheep, in rather small quantities, three times daily. In dogs a very small quantity, as a teaspoonful for small ones, of finely *chopped* raw, lean beef, may be given as often as each three hours, if it is eaten with relish; in addition to which warmed milk with lime water, with a little sopped stale bread, may be fed once or twice daily; or strong beef broth instead of the milk, if it is preferred. In fact, all of the animals may have milk or raw eggs added to the regular food, and be the better for it, at times. Pain, if present, is to be relieved by tincture of opium in doses sufficient to accomplish the object, but no more. If the case improves a little with the stimulants, and the appetite is retained fairly, sulphate of quinine will be found to be the best tonic, or, in small dogs, a pill of the citrate of iron and quinine, one grain each, will be good. If whiskey is being used with horses or cattle a medium dose of quinine may be added to each drench of the whiskey and water. And finally, the most important and difficult measure of all, the purifying of the blood, is to be attempted. For this purpose there is no better agent than the sulphite of soda, which should be used, from the first, in large doses, with just sufficient water to allow its being floated down into the stomach; say for horses and cattle, one ounce of the sulphite, in saturated solution, to be given two or three times a day.

Simply stated, the remedies for this condition may be said to consist of absolute cleanliness, stimulants, nourishing food, sunlight and pure air, tonics, and the removal of all sources of further irritation, as fast and as far as may be possible.

Septicæmia is a constitutional disorder due to the absorption into the blood of a poisonous material which has been the product of decomposing animal matters; the introduction may be direct, as from a badly treated wound of any sort, or by the continuous absorption of foul gases. It is closely allied to that fever which follows wounds accidentally made through the skin, or certain surgical operations.

Causes. — Decomposing tissues which cause septicæmia may be *in* the body, as in gangrene of the lung; a retained and decomposing after birth; a wound within the cavity of the vagina, etc. Or *on* the body, as in any wound, more particularly those that have been accompanied by blows or tears, or, markedly, when an animal has been extensively burned or scalded; or outside the body, for it is said it has been introduced through the breathing apparatus, where no wound has existed.

Symptoms will vary much with the amount of the poison that has been introduced into the system. They may be exceedingly urgent, or so mild as to attract but slight attention. In a well marked case there is, at first, a chill which may or may not be noticed, so slight is it; there is a rapid rise in temperature, perhaps to 106° or 107° . The pulse is frequent, 70, 80, or 90 beats in the minute; its character is thready. The respirations are feeble, hurried, and more or less labored; the membranes of the eyelids may have a slightly yellow tinge and they will be much darker red than in health. The surface of the body is hot and dry, or, if sweating occurs at all, it will be early in the attack and very slight. The appetite is lost; the animal is dull and listless with hanging head. The bowels are quite loose and their discharge offensive in about one half of the cases, in all of the severe ones. The urine is scanty and high colored. In the severe cases the animal will die in a complete state of collapse in from twenty-four to seventy-two hours.

Treatment. — In a fully developed case of this disorder any treatment will be unsatisfactory. The surroundings of the animal are of great importance. There must be, as nearly as possible, absolute cleanliness of the wound and of the skin and hair near it. Good air, sunshine, moderate and even temperature (about 65° F.) of the room in which he is kept. The food, if he will eat, should be strong and good: in the case of horses, cattle, and sheep, *good* oats; in dogs, milk, eggs, strong beef broth, or finely chopped raw beef, in very small doses, once in three hours, if it will be taken so often. Whatever food is refused should be removed at once and not replaced until the next feeding time.

The local medical treatment brings up the entire question of antiseptics, in which class there are many agents now in use, any one of which will perhaps be as useful as another. Carbolic acid, one dram to one-half pint of water, except in dogs; lysol, which may

be used in dogs, as well as in the other animals, fifty drops to one-half pint of water, will be found to be all right. Whatever is used, let the cleansing operation be *very* thorough, remembering that the object sought is to make the wound as nearly *absolutely* clean and antiseptic as possible and, until the wound remains *clean*, the dressing should be done at least twice, or in some cases, where the discharge is considerable, three times a day. If, after a fair amount of cleanliness has been attained, the wound looks pale or "indolent," it may have, with advantage, a *thin* sprinkling of finely powdered iodoform, put on just after the cleansing process has been finished.

The constitutional treatment is but to repeat, largely, the directions given for pyæmia, with this difference, however, the bowels should be freely acted upon, throughout the attack, by epsom salts. Then, in dogs, brandy; in horses, cattle or sheep, whiskey or rum, in good doses. This is to be substantiated by such tonics as quinine or salicylic acid, given in the proper doses for each animal. The sulphite of soda should be used as recommended for pyæmia, in good full doses, given three or four times daily.

Anthrax.

This is a general blood disorder of purely contagious origin having a wide distribution and affecting all animals, but most observed in cattle, sheep, and horses, and in dogs that have eaten the flesh of animals dead from it. It appears at all seasons of the year, but more extensively during, and just after, hot weather. It generally attacks a number of animals at about the same time, as on a certain farm, within a given district; occasionally a single animal may become sick with it, this especially among horses and dogs. Its contagious quality seems to be modified by climate, as its greatest ravages occur in hot, more or less marshy, districts. It appears in two forms, first as a general blood disorder *without* external local manifestations, second *with* external and easily noticeable carbuncles of larger or smaller extent. As a remarkably good instance of the behavior, uncompromising nature, and great fatality attending this disease when introduced to a northerly climate, the following notes on an actual outbreak will well repay perusal. "Prior to any outbreak of disease among the horses, several sheep had died upon the farm, which, according to the history given, had shown symptoms indicating blood poisoning. The animals were said to have refused their food, to have become suddenly prostrated, and to have been unable to walk with a steady gait. Their heads and necks had rapidly swollen, their breathing had become difficult, and they had died within a few hours. The carcasses of these sheep were taken to a near-by pasture when they were skinned and opened. Large quantities of a jelly-like material (exudation) were found around the throat and upper part of the neck, as well as in the cavities of the chest and abdomen.

After being skinned the carcasses were hung upon some trees in an adjoining orchard, to be used as food for dogs, from time to time. The dogs, being at large, tore off the flesh and carried it to different parts of the premises, especially those near to the barns. Originally there were eleven horses, of various breeds and ages, which were principally used to work the farm. The stables in which these were kept, although low studded, were clean; well ventilated above the average; and drained by surface gutters, which carried the fluid products into a stagnant pool in the barnyard. The grain was sound, the hay well got, sweet, and entirely free from the effects of "heating." The pastures were examined and found to contain no plants of a poisonous character; the herbage was good. The animals were turned at night into a field lying next to the one in which the sheep had been skinned and opened.

The water supply was found to be derived from three sources; first and principally, from the stagnant pool mentioned as receiving the drainage from the stables; second, from the house pump; and third, from a brook running by the side of the field in which the sheep had been cut up. The pool water was stagnant, black in color, and offensive, having in it a large quantity of organic matters, both animal and vegetable. The waters of the stream and pump were clear, tasteless, free from odor, and there was no apparent source of pollution for either of them.

Among the horses the disorder first showed itself on August 23d, when a four-year-old filly, pastured in a field lying next to "the sheep field," became suddenly ill and died in about twenty-four hours. The body of this animal was taken to the barnyard, skinned and opened, at a spot about ten yards from the pool. From the place where this body was opened there is a steep fall to the pool. The bowels of this animal were buried about fifty yards from the pool, but on a much higher level; the carcass was removed from the premises.

On the 3d October following a five-year-old horse became suddenly ill and died in about three hours. The body was disposed of as in the first instance. From this date other horses continued to die at intervals of a few days up to the first of November, by which time seven had died. The last five of these were skinned and buried in the "sheep field."

Two pigs, a dog, and a cat which had eaten of the raw flesh, died suddenly without having shown any symptoms of ill-health. Some portion of the carcass of the horse which died on the 3d October was removed to a neighboring village and boiled for hog food. Two of these thus fed died, and the man who had cut up the meat and boiled it died on October 23d from anthrax, without local symptoms, although there was a slight wound on the knuckle of his right thumb, with some little swelling just about it. There was no swelling of his arm.

Causes. — The disease depends upon the actual presence of a certain microscopic germ, or seed, to which the name of *bacillus anthracis* has been given. This seed may be brought to a given locality in a great many different ways, as in wet or dry hides, taken from sick animals, or, perhaps, particularly in the bodies of live animals, upon which it has not yet made a marked impression, but in which, after a longer or shorter time, depending upon the amount of infection received or the natural resisting power of the given animal, it will develop, and so create a new focus of contagion. The climate and soil conditions of the part of the country into which such an animal is taken will have a very considerable influence upon the spread of the disorder there. If it is hot and marshy anthrax will easily spread beyond ordinary means of control; indeed there are several places of this kind in the world, in which the germ is never absent from the grazing lands, and rarely from among the animals, unless they have been made immune by a "protective inoculation," as sheep have been in certain parts of France. If the contaminated animal comes to a cooler climate and gets into a pasture which is rather moist, with a clayey bottom, the disorder is to be got rid of, but at the expense only of considerable time and much working over of the land. If, again, it is introduced, as in the body of a horse or cow, to a cool locality where there is a good gravelly sub-soil, the very commonest measures will prevent its spread. Indeed, unless such single case is handled both before and after death, with great carelessness, the outbreak will generally, if the disorder is recognized early, be confined to the animal bringing it.

Symptoms. — These are so variable, even at different times, in the same species of animal, that a variety of names more or less descriptive in character, have been given to it, and this fact makes a relation of the symptoms, unless they are placed under each name, almost impossible to give plainly.

The length of the period after exposure to the contagion varies considerably and is materially affected by the natural resistive powers of the animal, the nature of his surroundings and the amount of "poisoning" which he has received. It may be from a few hours to quite a number of days.

Anthrax Proper. — The very acute form, often called the apoplectic, is rarely seen. The animal, without having shown symptoms of having any trouble, will suddenly be seized with violent muscular tremors, general or partial sweatings, tossing of the head, difficult and paroxysmal breathing, a staggering gait as he walks, or he is not able to walk at all, he falls, and after a short period of unconsciousness, with more or less convulsive struggling, he dies.

In a case which is less rapid in its course, lasting for perhaps three or four days, the animal becomes drowsy and stupid with much prostration of strength; he begins to be uneasy, paws, changes his

position, looks back at his flanks, in fact acts as if suffering from a mild continuous or intermittent colic. In walking the hind extremities sway from side to side, and he constantly stumbles. The *skin* is hard and dry and will be found to almost rattle in parts (crepitate) if the fingers are passed over it.

There are general or partial tremblings as well as alternating cold and hot sweats, more particularly noticeable about the base of the ears, over the chest, behind the elbows, and at the flanks. In some nervous animals the early stupor is replaced by violent excitement or irritability. The respiration, at the outset, is sometimes not much altered, at others it is hurried, or, if the brain be particularly affected and he is drowsy, it may be protracted and labored. The pulse, increased in frequency, is feeble and small, this becoming more and more marked as the disorder advances; the heart's action finally becoming tumultuous. The temperature is much elevated and, as a rule, continues so until just before death, when there is generally a marked decline. The earlier symptoms may remain stationary, or nearly so, for about twenty-four hours; the pulse then becomes weaker, the respiration more hurried, irregular (catching), and difficult. The nostrils are dilated and the visible membranes will have a bluish, livid appearance (cyanotic), or in certain cases be of a dirty yellow color marked with larger or smaller dark blood spots. There is a straw-colored fluid discharge from the nostrils which may or may not be mingled with a little dark blood. The mouth is full of a pasty, frothy material having a peculiar bad-smelling odor.

Not infrequently the termination of an attack of this form begins with a sudden apparent attack of colic, or with delirium or semi-consciousness, when, if the animal is at liberty, he wanders about and presses his head against some firm body, as a wall or fence. The colic is accompanied by tremors, or spasms, and there may be an irritable condition of the bowels, with which, rarely, the discharges may be mixed with blood.

Or the earlier symptoms may be succeeded by unconsciousness, with dilated pupils, a haggard expression of the face, and increased difficulty in breathing. When either of these last two conditions arises the animal rarely survives long, all control of muscular movements is gradually lost, he falls suddenly to the ground, where, after struggling convulsively for a short time, he dies.

Anthrax, with local complications, called by some anthracoid disease, is presented in several separately named forms, as:

Tongue Anthrax (Gloss Anthrax).—This usually begins with an attack of general feverish disturbance, after a little time of which the animal, though occasionally disposed to eat, is unable to do so, and this is generally the first attractive sign of indisposition. Examination for the cause of this inability to eat shows that the tongue

is swollen, tense, and firm, with, very early in the disorder, several larger or smaller blisters along its upper surface and sides, and the mouth is filled with ropy saliva. The glands under the tongue are swollen and seem to be filled (infiltrated) with a straw-colored fluid. The blisters grow very rapidly in size and become dark red in color; the swelling of the tongue increases until that organ protrudes from the mouth, is livid in color, and indented or torn by the teeth. The ropy saliva now becomes of a rusty hue, because blood from the torn tongue or the broken blisters is mixed with it. The ability to swallow even fluids is gone; and the constitutional symptoms become more severe. The ruptured blisters show an unhealthy, angry looking surface, particularly around their edges, where they may have a rotten (gangrenous) look; they soon become coated with a soft yellowish substance, which is removed from time to time, and with each removal the size and unhealthy appearance of the sores is increased.

From pain, thirst, impeded breathing, and general discomfort, the animal becomes restless, looking anxiously about him for aid and relief, and if a full tub or pail of water is placed within reach he will plunge his head into it, up to the eyes; water served in this way should always be kept where he can get at it, as, although he cannot drink, it will give him great comfort.

Throat Anthrax, Anthracoid Angina, may appear by itself or follow, in complication, with the disorder of the tongue just described. After a period of constitutional disturbance, which may or may not have been noticed, the throat begins to swell; this progresses with great rapidity and soon produces great distress in breathing, because the structures around the upper opening of the windpipe (larynx) are seriously implicated in the general swelling of the throat, which may extend down the course of the windpipe to the chest. Accompanying this there is usually a blood-tinged discharge from the nostrils. When the swelling of the throat is extensive the disorder runs an exceedingly rapid course, the animal dying from suffocation in a few hours, in spite of *anything* that can be done.

Expressions Peculiar to Cattle.

Blackleg, Quarter Ill. — Here, in addition to loss of appetite and shivering, lameness of one or more of the limbs appears, rendering movement difficult and painful. Respiration is increased to thirty-six or forty in the minute; the pulse to one hundred or more; body surface sometimes hot, at others cold. The lame leg commences to swell and this quickly spreads to adjacent parts. If the hand is passed over this swelling there is a feeling as if air were present under the skin (it crepitates). The animal soon lies down and dies in from twelve to thirty-six hours, with or without convulsions.

Carbuncular Fever. — In other cases, after the same early symptoms of fever, swellings, perhaps about the size of an apple, appear on the back, loins, head, or neck. These are painful at first, but soon begin to spread into surrounding parts until they become quite large, crepitate, and show no further pain. The animal dies much as in blackleg.

Intestinal Form. — After the fever, a diarrhœa, often accompanied by colic, begins to show itself. The bowel discharges are mixed with blood; the external swellings are either absent or confined to the posterior back. Death occurs in from twelve to thirty-six hours after the diarrhœa is fully established.

In addition to the symptoms already described there will be an anxious expression of the face, frequent moaning, and, in older animals, bellowing, disquietude, shown by frequently getting up and down; and when down by lying with the head turned back upon the shoulder and the feet held close under the body.

Expressions Peculiar to Sheep.

Sheep, particularly the higher bred ones, are more liable to be attacked by the apoplectic form. It has been and still is very destructive to these animals in certain parts of the world, including some parts of the United States.

Apoplectic Anthrax. — There are no signs of approaching trouble. The animal lively and, so far as can be judged, in perfect health, falls down, perhaps while still grazing, and dies, within a few moments, in convulsions. Or it lies paralyzed, with hurried and labored breathing, eyes prominent, and a bloody discharge dropping from the nose and mouth. Death follows in a few hours, in the midst of distressing convulsions.

Some Cases are not so Rapid. — The sheep is dull, refuses food, carries the head low and the back “humped up,” gets up and down frequently; if the flock is moving it drops behind, goes slowly and gently, perhaps staggers. These symptoms progress, tremblings set in, the animal can no longer stand, becomes more or less blind, blood is present in all of the discharges, characteristic swellings may appear upon almost any part of the body, and the animal dies in convulsions.

These symptoms, especially in hot weather, succeed each other so rapidly that the animal may die in one, two, three, or four hours. On the other hand, the disorder may be so much more mild in type that the fatal ending may be put off for a much longer time.

Carbuncular Fever. — External tumors are rarely seen in sheep, and then only about the head and udders; but a wide-spread inflammation, like erysipelas, is more often seen. After the usual early

fever, which may or may not have been noticed, some of the strongest looking animals in the flock begin to limp or show more or less stiffness in walking, behind. Careful examination will show a dark red swelling inside the thigh, which crepitates upon pressure; soon extends to the belly and chest, but rarely reaches the neck. This swelling soon becomes cold, the outer skin peals off, and a bloody fluid oozes from the exposed surface; fever becomes intense, the abdomen is full of gas, and a bloody foam may flow from the mouth. Death occurs in from three or four to twenty-four or thirty-six hours.

In Dogs.

The spontaneous development of anthrax does not occur. When this animal is attacked it is because he has either eaten the flesh, or in some way become inoculated from the carcass of an animal dead from the disorder.

A dog may die of the apoplectic form. Or if not so quickly there will be a swelling of the throat, a small round swelling appears on some part of the head, usually about the lips; which in a few hours is so much increased as to occupy the entire region in which it is situated. The great swelling of the head closes the eyes, extends down the neck, along the windpipe, thus disturbing the breathing process. The whole swollen surface now becomes a red violet color, the inside of the mouth shows the same color, and from it there is a considerable ropy discharge and the appetite is lost. Prostration is present from the first; the animal will not come to the call; persists in lying in a cold, damp place rather than upon a good bed. The duration of the disease is not longer than five days, whether he lives or dies; he may die within twenty-four hours of the first appearance of the swelling.

Man.

It may be interesting to state here that the disorder in man is known as malignant pustule; and that he, like the dog, can contract it only by inoculation. It has been known as wool sorters' disease, because so many of that occupation, in handling wool from the dead sheep, have contaminated their fingers and then have scratched some part of themselves, usually the neck, with their finger nails. In some places, where the men go barelegged, their limbs have been inoculated from the bites of flies, which had, presumably, been feeding upon the dead carcasses.

Mortality. — The disorder leads to a very large percentage of death. In the apoplectic form all die, without exception. In the acute cases of fever the dead of those animals which become affected reaches to 75 or 80 per cent; and in the less severe to 50 per cent. In a general outbreak, as among large bunches of cattle and sheep,

the earlier cases are usually the most fatal, while after the less susceptible animals are attacked the rate of mortality often decreases.

Treatment. — This divides itself into two parts, that which tends to limit the extent of the outbreak; by far the most valuable; and that which attempts curative measures in the animals already attacked.

First. When the animals are at grass, and the disease has already made its appearance in a case or two, or when, from any cause, its coming is feared, the soil demands the first attention. If it is damp or clayey, or at all swampy, in part, the animals should *at once* be moved to a higher location where the soil is dry and gravelly, because there the germ is less likely to be preserved and increased. In a recorded case forty animals out of two hundred had died within ten days; yet, after removal to a near-by dry pasture, and the use of antiseptics with the food and water, the attack abruptly ceased and forty-eight out of fifty that were sick at the time of removal, recovered. Damp soils, in regions where the disease prevails, are rendered much less dangerous, after a time, by thorough draining, if that be possible to their situation. In such localities the animals should be put onto as high land as possible, as the hot weather term approaches, or, if this cannot be done, and they can be housed during the night and until the dew is off, the danger will be considerably lessened. Yet in all these localities the germ will, at times, obtain access to the animals either through the herbage or the drinking water. A point of very great importance is to make safe disposition of the products and carcasses of the sick and dead animals. These should be burned, if possible, or, failing this, deeply buried and thickly covered with quicklime, and the ground so used must be fenced off and so remain for several years. Of course sick animals will at once be separated from well ones and great care used to prevent contamination, either through food, water, utensils of any sort, or the persons in attendance.

As a further means of prevention a method of inoculation has been in use, more particularly in France, for some considerable time, and with more or less success. This, in large herds, is very expensive, somewhat uncertain in its results, and should only be undertaken under the immediate supervision of a very expert veterinarian.

Medical Treatment of the Sick. — *Danger.* It must be remembered that in attending these sick animals great care must be taken, by the one doing it, against becoming inoculated, through the broken skin, as upon one's hand or other uncovered part of the body, from the blood or any other secretion or excretion coming from the sick animal. The writer was once so inoculated through the ropy saliva coming from a horse's mouth. He recovered, after a considerable time, although his attending physician said that he had no business to do so. It may be instructive to say that his treatment was by large internal doses of iodide of potassium, together with heavy burning

(cauterization) of the original wound on the finger, and afterward of the secondary tumor which appeared upon the arm seven or eight inches above the wrist. The horse died within less than twenty-four hours of the time of his first seizure, from anthracoid sore throat.

In the apoplectic form nothing can be done. In those cases which do not stride on to the fatal termination so quickly an attempt at cure will, once in a while, save the animal.

Local Treatment. — The large swellings under the skin should be bathed four or five times a day, for ten minutes at a time, with *hot* water, and dressed, just after, each time, with a mixture of ten per cent carbolic acid, one ounce, and sweet oil, four to six ounces, depending upon the thickness of the skin. When the swellings crepitate further treatment of them will be useless; but the parts just beyond may be stimulated by a mixture of sweet oil, water of ammonia (not the strong ammonia), and turpentine, equal parts. This should be used by rubbing it lightly onto the parts twice a day until it begins to blister or the parts become crepitant.

In sore throat the same local measures are to be undertaken. If, notwithstanding this, suffocation threatens, no attempt should be made to relieve it by opening the windpipe below the throat (tracheotomy), as it will, at best, prolong the life no more than a few minutes.

If constipation, without colicky pains, sore throat, or large tongue be present, relief may come from the administration of a large dose of oil, as in horses and cattle of fairly good size, raw linseed oil, three pints, with a heaping tablespoonful of saleratus. In sheep the same, except the size of the dose should be limited to the largest one recommended for this animal. In dogs, castor oil and sweet oil, one-half ounce each for medium sized animals.

In Swollen Tongue, the blisters had best be opened with a sharp knife (be sure not to wound the hand, which had best be covered with a heavy leather glove, which should afterward be burned) and the cuts should then be immediately dressed with a strong solution of carbolic acid, as three drams of the acid to thirteen ounces of water. This should not be used on dogs, the cuts in which may be well rubbed with a stick of caustic (nitrate of silver). If the tip of the tongue becomes dead (gangrenous) it may be cut off with a sharp knife; the cutting should be done in the dead part as close as possible to that which is still alive.

Internal Treatment. — Very good results have been obtained by carbolic acid, in horses and cattle, as, carbolic acid one-half dram, aromatic spirits of ammonia two drams, water one pint: all to be given at a dose and repeated each four hours. For sheep the same, but in properly lessened doses. (See dose table in appendix.)

In dogs the acid should not be used; in its place give iodide of potassium in water in proper doses for the size of the animal three or

four times during the twenty-four hours, for as long as it seems to be required, or until the stomach becomes too much irritated, as will be shown by vomiting, in this animal. Indeed this agent may be used in any of the animals in its proper full doses.

In blackleg in *cattle*, and the similar condition of *sheep*, as well as in anthracoid disease in horses, the *borate of soda* has given good results. It should be dissolved in water and given in full doses (see table) three times daily. It may also be given to dogs. While this is being given all other internal remedies should be discontinued. The solution should be drenched in the usual way. It may also be given to animals which have been exposed, but which have not yet shown signs of the disorder, in about one fifth the dose given to sick animals, at the same intervals and in the same way. Some animals with good appetite will eat it if the solution is sprinkled upon a small amount of grain food or meal. This, as a preventive, may be continued for eighteen or twenty days. Bleeding is contra-indicated in any case.

Rabies — Hydrophobia.

Madness, of all diseases the germs of which may be introduced into the bodies of all warm-blooded animals, including man, is perhaps the most distressing; not only because of its almost universal fatality, others are that, but because of the horrible suffering, both of mind and body, that it gives rise to. Some persons affect to believe that no such disorder exists; this opinion is against the truth and not intelligent. Others have thought that it is not a purely germ disease, but can arise, without the seed having been planted, in dogs, wolves, foxes, cats, and skunks. This is as bad a misbelief as the first, but far less dangerous. It is absolutely certain that rabies cannot be set up in the body of any animal, under any possible combination of circumstances, unless its germ or seed has first been implanted by inoculation into the body of that animal. It is also true that all bites from animals that are undoubtedly mad do not set up rabies in the bitten animal. There is, or appears to be, a certain percentage of natural exemption in this as in other similar disorders, in which the systems of various bitten persons and animals do not seem to be good soil for the propagation of the seed, at the time when the inoculation occurs and the germ does not sprout. Then again it makes considerable difference what kind of animal has been bitten; if he is covered with long, close hair or, in the case of man, the bite is through the clothing, there is much less danger, because the teeth of the attacking animal are wiped and so made more or less free from the saliva, which contains the germ, just before the wound is made; then animals having blunt teeth, as horses, are far less liable to break the skin in biting than are those with sharp ones, and the longer and heavier the teeth of the biting animal, the greater danger there is that the germ will be conveyed.

Rabies is commonly thought of as belonging to and arising in dogs; this is not true; the fact being that dogs running about as they do, meeting others and having a little fight with them, as is their nature, live under circumstances which are ideal for its maintenance and spread. As a matter of fact a mad cat is by far the more dangerous animal of the two, because, at the time she attacks, she does so with both teeth and claws, filling the air at the same time with the poisonous saliva by "spitting" with greatly increased fury and with a considerable increase in the quantity of saliva at her disposal.

Causes. — These have been sufficiently described in a general way. It may be said in addition that nothing more is known as to where the first germ came from than as to where the first seed of corn came from. The dog-days have nothing to do with its spread or existence; in fact carefully kept records, in various countries, show that it as often appears in cold as in warm weather; the disease is not known in many tropical countries, whereas we know that it is most prevalent in the temperate zones. It was formerly thought that the malady arose spontaneously through restraint put upon the sexual desires of the animal. This cause was carefully and systematically investigated and found to be without any foundation in fact. Other theories of less importance have from time to time been advanced and exploded. That extension by inoculation is the only cause is well shown by action undertaken by the government of the city of Berlin, in Germany, a number of years since, when it was ordered that all dogs going at large should be muzzled. For the nine years preceding the execution of this order, two hundred and seventy-eight cases of rabies were verified there; while for the eight years immediately after its enforcement only nine such cases were found, and all of these within the first three years after the institution of the muzzling order. The germ of rabies is a fixed one and is discharged from the sick body in the saliva; it is most certainly introduced into the bodies of animals by the bite of a rabid creature; and if the wound thus inflicted be upon an exposed part, as the face or hands, in man, or conditions approaching that in animals, it is much more commonly followed by the development of the malady.

As to this, good reliable statistics, in human cases, show that of face bites 90 per cent resulted in death, in the hand 73 per cent, on the arm 28 per cent, on the legs 29 per cent. In body bites, which are usually delivered by large animals, wherein the clothing gets much torn and the bites are several in number, the death rate is 63 per cent. No authentic cases have been reported in which rabies has followed the eating of meat or the drinking of milk from a rabid animal, although many cases are reported wherein both animals and men have partaken of such viands. Notwithstanding this the practice had much better be avoided.

Symptoms. — Rabies has been described as divided into three

stages and as appearing in two forms, the furious and the dumb. The change from one stage to another is not by any means sudden. The malady *never* commences with fury or with a sudden fit.

In the Horse, rabies is usually first indicated by restlessness, biting at the seat of the injury, if within reach of the teeth, as if it itched, changing position frequently, starting suddenly as if frightened. The ears are moved as if the animal heard strange sounds, and it appears as if it saw objects in the air, when there are none. Sexual desire is generally heightened in mares and stallions; urination is frequently attempted, in many cases. As the malady progresses there are quiverings of the skin followed by more or less decided convulsions; there is loss of appetite and difficulty in swallowing appears. During the convulsions or paroxysms, in proportion to their severity, the animal kicks violently, and bites so furiously at any object within reach that sometimes its teeth or even jaw-bones are broken. It will at times also bite its own body. Breathing becomes hurried; the voice, when heard at all, is hoarse and unnatural in sound. Salivation is very slightly increased. The duration of the paroxysms is variable, and during the intervals between them the animal regains his faculties more or less. Each succeeding attack of fury is more intense, and the period of quiet between them becomes shorter and shorter; the general strength declines rapidly until toward the end all power of movement of the hind extremities is lost and the horse remains lying down. Death usually takes place in the midst of a paroxysm from the second to the sixth day.

In Cattle the symptoms are similar to those in the horse, excepting that sometimes their beginning is much less well marked. Depraved or lost appetite, great restlessness, increased excitability, muscular tremblings, saliva flowing constantly from the mouth in considerable quantities, sexual excitement, especially in bulls, difficulty in swallowing, evident uneasiness at the bitten part, and seeing imaginary objects, complete the first stage. Next the periods of fury begin: the eyes are staring, bloodshot, and the pupils are dilated; the mouth is hot and foamy, the voice dull and hoarse, the animal bellows frequently, champs its jaws, paws the ground with its front feet, falls down and rolls about, or tries to break away from its fastening. Rabid cattle strike with their horns at any object within reach, with such force as often to break them off and cover the forehead with masses of blood. They will bite, but do not commonly attack with the teeth. The manure, at first expelled at long intervals and in small quantity, later on becomes liquid and passes involuntarily; there may even be extrusion of the rectum. As the third stage begins the animal shows considerable emaciation, weakness is extreme, the hind legs will not sustain, and the animal goes down, to remain so. Death follows a state of profound insensibility (coma) in from two to six days.

In Sheep there is at first diminution of appetite and chewing of the cud stops, the skin begins to itch, there is increase of sexual desire, the voice is changed, the eyes stare, and the nasal secretion increases in quantity. This is closely followed by the second stage in which the paroxysms begin and continue at intervals; the animals make unusual jumps, paw with their front feet, grind the teeth, and butt at any animal or object within reach. It is not unusual for them to show a disposition to bite people and animals; and the disease has been transmuted by them, in this way. The third stage is reached; there is considerable emaciation, debility, with following paralysis. The animal lies or falls down, there is a profuse discharge from the mouth and nose. Death takes place during a paroxysm in from the fifth to eighth day.

Furious Rabies.

In the Dog. — It will be noticed, at first, that the animal becomes dull, gloomy, and quiet, he tries to hide in some out-of-the-way place, as in a dark corner or under some piece of furniture, but even so he is restless, uneasy, and fidgety; no sooner does he lie down than he suddenly jumps up again, walks about, again lies down and perhaps assumes a sleeping attitude; after a few minutes he is up and walking about again, and so on until he finally goes to the most obscure place that he can find, and huddles himself into a heap with the head beneath the chest and front paws. Any such uneasiness as this in a dog should lead to his being carefully secured, by a good chain or otherwise, in some safe place, and watched carefully. Not infrequently there are short intervals in which he appears more lively than usual, and displays an unusual amount of affection, during which an animal under suspicion should on no account be allowed to lap the hands or face with his tongue. If at liberty he shows a disposition to pick up all sorts of foreign bodies, as straw, bits of wood or coal, stones, etc., and to swallow such of them as he can. At this early stage sexual excitement may be increased. As yet there is no disposition to bite, he will obey the master's voice, but not so quickly or cheerfully as usual, and he still has a gloomy expression of face.

Second Stage. — These symptoms gradually become intensified and the animal goes about sniffing in the corners and at the doors, as if seeking for something; he moves strangely as if haunted by fancies. When not excited by any external occurrence, he will remain still as if watching something, or following with his eye some moving object on the wall or in the air; then he will suddenly jump up and snap at vacancy as if endeavoring to catch a fly. At other times he throws himself furiously against the wall as if he heard strangers on the other side. Up to this time he eats voraciously. Soon, however, the uncontrollable desire to bite begins to show itself, and at this time, if

he can possibly get away, he will travel long distances from home, biting any man or animal that he goes near so long as his strength lasts. From the commencement of this evidence of a desire to bite, whether he has been secured, or is at large, the more highly nervous symptoms begin to appear; the animal will not eat or drink; this is not that he dreads either water or food, but rather that a feeling of constriction in the throat, which prevents attempt; indeed it is not at all infrequent to see them make an effort, with their paws, as if to remove some object that had fastened itself in the back teeth or the throat. The voice becomes peculiarly changed in sound. The sight of another dog or a sudden loud noise will often induce the first real paroxysm of fury, which is to be followed by others, at intervals, until by their repetition, and perhaps the labor of traveling and the approach of the paralysis of the third stage, he will lie down entirely worn out.

During the paroxysms the respirations are hurried, the pulse is quick and hard, the temperature is increased, and the animal seizes with the teeth whatever is within reach and bites and pulls at it in a most violent manner, so much so as oftentimes to wound the mouth or break out the front teeth. These attacks of fury are increased by sudden noises or excitement of any kind, while, if the animal be kept in a dark, quiet place, the paroxysms may be very slight. If large quantities of saliva flow from the mouth it is because he cannot swallow the amount of that fluid that naturally flows into the mouth. Mad dogs but rarely show the frothy foaming mouth so commonly supposed to be a constant symptom. The paroxysms continue until finally his strength is gone, paralysis begins, and he lies down to enter upon the

Third or Last Stage. — The hind legs lose the power to support the weight, the lower jaw becomes more or less drooping, emaciation is great, the paroxysms diminish in intensity, the coat is dull, the eyes lose their lustre, become clouded and are sunken in their sockets. The breathing becomes labored and the paralysis general, the dog lies in a state of stupor, full insensibility follows, with or without convulsions, and the animal dies within two to four days of the beginning of the second stage.

Dumb Madness. — In this, which is almost a purely paralytic form of the disorder, after having a few of the first symptoms of the first stage, the voice is lost, the lower jaw drops, paralyzed; the animal can neither eat nor drink, although if given the opportunity he will try to do both. The desire to drink is so great that the whole head up to the ears will be thrust into a pail of water in a vain endeavor to relieve the intense pain due to the always open mouth and inability to swallow. The tongue may be fairly natural in substance, or swollen; it is covered by a brownish material, and a stringy, gelatinous looking saliva is present in a moderate quantity in the mouth and throat. Anything like the tendency to follow imaginary objects, run away, desire to bite,

and the frenzied paroxysm does not appear and the dog is generally quite passive; there may be some swelling about the throat and the tongue is pushed out of the mouth. The other symptoms, as rapid exhaustion, loss of flesh, paralysis of the hind limbs and finally of the whole body, as well as the progress of the whole course of the disorder, is as rapid in this as in the furious form. While it is true that in dumb rabies the animal evidences very little if any desire to bite, and that he cannot do so if he would, because of his inability to use the lower jaw, it is well worth while to remember that the saliva is just as dangerous in the one case as the other. Death occurs generally about the fourth day from the visible commencement of the attack.

Treatment. — After a dog has clearly shown that he is undoubtedly rabid he should at once be killed, *unless he has just previously bitten some person or other animal*: in which case he *must* be *securely kept alive* until it is found whether or not there has been any mistake about it; for among people a nervous disorder (false hydrophobia), which is purely imaginary but nevertheless sometimes fatal, follows the bite of a dog which was not only well at the time of the biting, but which lived in health for a long time afterward. If a dog is really mad he will die from the disorder in a few days, and the fact, if the dog is allowed to live to the end, will be known and measures can be taken to prevent its development in the bitten person or animal. If, on the other hand, the dog lives for more than four or five days it is *certain* that the bitten person is in no danger of having contracted the disease from his bite. The nervous dread will thus be allayed and the person's life saved.

If an outbreak of rabies happens in a neighborhood all dogs there, that are allowed to go at large, should be muzzled, and the muzzling should be continued at least thirty days after the last known case has been taken care of, for the period of incubation is not always a short one. This, however, is a matter which can be taken care of by the proper State or town officers only.

If a dog or other animal, which is known or thought to be rabid, has bitten other animals or men, the bitten one should *at once* be subjected to measures which will lessen the likelihood of inoculation. *These measures are* sucking the wound, squeezing out the blood and perhaps the virus from the wound while it is covered with water or held under a "tap"; twisting a piece of rope or other strong, suitable material around a part between the wound and the heart, as closely to the wound as possible; cutting out the bitten parts with a sharp, clean knife, or, best of all, burning out the wound *thoroughly*, with a red-hot iron or a stick of lunar caustic. If the burning or cutting out the part is done before any of the virus gets into the circulation there will be no further danger; but it must follow within a few minutes of the infliction of the bite, or it will be too late.

No Curative Medicines, to be used after the disease has shown itself, are known, nor should any attempt be made to administer anything of the kind to sick animals; the risk is entirely too great.

Between the time of the bite and the development of the disease there is always a period of incubation of longer or shorter duration. If, during this period, before any of the symptoms are shown, a bitten person can be put into the hands of a good Pasteur institute and there subjected to a series of proper protective inoculations, it is almost certain that no hydrophobia will result from the bite. The lives of valuable dogs may be saved in the same way. There are such institutes in New York City and in Chicago.

Glanders and Farcy.

This is another of the diseases which depends upon the introduction of a special germ into the blood of a susceptible animal. Horses, mules, asses, and men are the most susceptible to its influence; other animals in their order of susceptibility are cats, dogs, goats, rabbits, and sheep. *Cattle* are entirely exempt.

It has been well described by various authors since the year 330 A.D.; but it was not until 1664 that any suggestion was made of its being contagious. This suggestion was not well accepted and gave rise to a very considerable controversy which was continued until in 1882, when it was forever set aside by the undoubted discovery of the germ giving rise to it.

Its geographical distribution is very wide, but its greatest ravages occur in the temperate zones, while it does not flourish in very hot or very cold climates.

Nature. — Glanders and farcy are one and the same disease; contagion from one form may produce the other form, or both forms may exist together in the same animal at the same time. The term *glanders* is used when the expression of the disorder takes place in the nose and lungs; *farcy*, when its poisonous effects are on the more external parts of the body, appearing to be just under the skin.

Causes. — At the present day the one accepted cause is *contagion*, but as the germ has been absolutely proved to be able to survive outside the living body, infection may come from other objects than a sick animal; it will therefore, not infrequently show itself in animals which it seems impossible to believe have come into contact with the germ. Still, so well established is the fact, that all such incidents must be looked upon as having the usual origin, however impossible it may be for us to trace it. But while the presence of the germ is the essential cause of glanders there must be, as in other similar disorders, an individual receptive condition; the condition of the animal must be such that the germ will grow after it has gained access to the body. This natural immunity is fairly large, as, for instance,

out of 138 horses equally exposed by cohabitation with glandered horses, no more than 21 became infected; about 15 per cent. Direct experimental inoculation with the poisonous material, the most certain of all ways of introducing the germ, has produced the disease in but 32 per cent of the inoculated animals.

The causes which predispose the system to the growth of glanders poison, the germ having been received, are impure and re-breathed air, seen especially among horses and mules which are taking long sea voyages, especially if the weather is so bad that hatches have to be kept closed for a considerable part of the time; in badly ventilated mines and stables, especially cellar-stables in which there is no sunlight. *Damp*, cold, and drafty stables greatly favor the spread of the disease, as do new brick or stone stables, until the mortar becomes perfectly dry.

Debility from continued ill-health, low feeding, or overwork, lessens the power to resist the effects of specific poisons, because in such instances there is always an excess of waste material in the blood which furnishes an abundance of food for the germ to live and grow upon. So notorious is this fact that in the old days, when overthrifty animals were kept at work much more freely than they are now, this disease was looked upon as being the natural winding up of pretty much all of the debilitating diseases in the horse. Modern practice shows that, if the germ is excluded, debilitated horses do not die of glanders unless they have had it from the first.

The channel of infection varies in different cases. In direct experimental inoculation the morbid process develops first at the point of operation and spreads from there to the nearest lymphatic glands, which with their veins are closely distributed over the entire body and in, practically, all of its tissues. It has also been communicated, experimentally, by mixing the nasal discharges from a diseased animal with both the food and water given to another, as well as by passing it directly, enclosed in a perfectly tight capsule, into the stomach of the non-diseased experimental animal. It is possible that the germs are carried in the air *for short distances*.

The ordinary methods of infection, then, may be said to be the eating or drinking of contaminated food and water; to some little extent by breathing contaminated air; or rather unusually by rubbing the nose upon, or licking with the tongue, any object upon which a diseased animal may have deposited the virus, as the edge of a public drinking trough, on a pail, hitching post, or in the mangers whereat a number and constantly changing variety of horses are fed, as in stables attached to hotels throughout the country, or in the "baiting" stables of the large towns and cities. It must also be remembered that the germ will live on inanimate objects outside the bodies of animals, and that in this way harnesses blankets, tools, or anything which has been used upon or been in contact with a glandered animal, is capable of contaminating a healthy one.

While the germs are most plentifully concentrated in the discharges from the nostrils and farcy sores, and practically all of the poison giving rise to new cases is distributed from them, no part of the body can be considered free from the poison. Glanders has been experimentally communicated by blood, tears, saliva, sweat, urine, and milk.

Symptoms. — Glanders and farcy are each capable of assuming an acute and a chronic form. With us chronic glanders is much more commonly met with than the acute; while in farcy the opposite of this is the rule.

Acute Glanders. — The symptoms are both general and local; the appetite is capricious or entirely lost; there is depression and rapid emaciation; the hair becomes dry and unhealthy looking; the animal shivers at intervals; the internal temperature ranges generally from one hundred and four to one hundred and seven, possibly a little higher, at which high point it will remain with very slight changes for some days, if the animal lives so long. In cases where the temperature does not reach to but little more than one hundred and four, the variations will be greater from time to time.

The heart-beats are strong and jerking. The pulse is frequent, quick, and small. The membranes of the eyelids are dark red in color. The membrane covering the partition between the nostrils is intensely red, and may look swollen; sometimes there is a little bleeding from it. The breathing is hurried and irregular and may be as fast as forty or even fifty in the minute, and is, not infrequently, accompanied by a soft snoring sound; there may also be, less frequently, great distress for breath.

In from two to four days, unless the animal dies from intensity of the fever before then, the fever diminishes somewhat and the *local symptoms* show themselves. Small yellow-headed pimples appear upon the covering of the partition between the nostrils, on one or both sides; they may be scattered or lie so close together as to appear like larger or smaller patches, of a yellowish gray color, slightly raised above the general surface. In one or two days these pimples (nodules) break and open sores appear in their places; the bottoms of these sores show fairly large patches of "proud flesh," having a reddish violet color, that bleed upon the slightest touch. These sores (chancres, they are called) are numerous, spread rapidly, run together and form large sores having the same characteristics and showing no tendency to heal.

With the appearance of the sores there comes a discharge from one or both nostrils, which, at first, is usually a yellow, sticky fluid, soon, however, becoming thicker, purulent looking, more or less streaked with blood or of a deep rusty color, and increased in quantity; nose-bleed may occur at intervals.

Accompanying the development of the sores, on one or both sides,

depending upon this condition in the nostrils, a swelling appears under the lower jaws and close to the inner side of the bones, which, at first, are rather soft, movable, and quite tender upon pressure. In a few days the borders of these enlargements become more distinct, harder, less movable, not quite so tender, and assume, after a little further time, the appearance described for the chronic form, as do the other symptoms, if the animal survives the acute attack.

Acute glanders is not infrequently accompanied, preceded, or followed by a complication of farcy, when lymphatic vessels in various more external parts of the body become inflamed, corded, and have open sores upon them. In cases which do not pass into the chronic form, the nostrular openings, the walls of the nasal passages and the upper extremity of the windpipe, in the throat, may become more and more swollen until breathing becomes difficult in the extreme, and suffocation puts an end to the life.

Other complications may occur, as intense inflammation of one or more joints; the fever, which may at first have subsided somewhat, upon the appearance of the eruption in the nostrils returns, when feebleness and prostration will become extreme. Pneumonia may be set up, which, with glanderous deposits that may have formed in the lungs, renders respiration more difficult and prostration more extreme. New sores may constantly form in the nostrils, the discharge from the nose constantly increase, the lungs become more or less filled with pus, and a profuse diarrhœa sets in to hurry death to the rescue.

The fatal termination may occur in from two to fifteen days; and may be due to the intensity of the first fever, exhaustion, suffocation, or the lung disease, or a combination of the second and last.

Chronic Glanders may continue for months or even years and the horse exhibit so little ill-health as to be kept at full work during the time. The symptoms may be local and general. Local symptoms are a nasal discharge, sores upon the partition between the nostrils and enlargements under the jaws, which are more or less firmly attached to the inner side of the lower jaw-bones.

Unless the case is one which began with the acute disorder, the first attractive signs will usually be those of an ordinary, chronic catarrh of the nasal passages, the discharge coming from one or both nostrils, most frequently from one only. At the very first the discharged material is rather clear, somewhat thicker than water and very sticky, but afterwards it becomes purulent, glutinous, and adhere to the skin around the nostrular openings, forming there soft, greasy feeling crusts of a more or less deep brown color, which adhere somewhat unpleasantly to the fingers, when touched. There is a time just before the brown or rusty color appears when the discharge may show a rather greenish tint which has been largely accepted as being the characteristic color of the glanderous discharge. This is an error, for in several

other disorders which are accompanied by a purulent discharge from the nose, notably, when the roots of double teeth are diseased, this same colored pus is not infrequently seen.

A case beginning as chronic may finally become acute, an early indication of which is that the nasal discharges become streaked with blood in small quantities. As a rule the discharge is *without smell*.

Sores upon the membrane covering the partition between the nostrils are not commonly to be seen unless the nostrils have been first dilated with the fingers of the examiner. In a supposed case of glanders this examination must always be made, but before doing it great care must be taken to see that the skin upon the fingers and hands and face is absolutely tight, that there are no possible opportunities for inoculation either directly, or indirectly by the horse "blowing his nose" during the search. The sores are usually few in number, in one nostril only. Their favorite situations are on the partition between the nostrils, well up in the visible part of the cavity. At times they may be found upon both sides and to a considerable extent. Early in the case, or when a new sore is forming, one or more small yellowish or whitish pimples will be seen on the membrane. They are from the size of a mustard seed to that of a small pea, and perfectly defined. In two or three days the pimples disappear and in their places there is a small concave depression on the surface of the membrane. These are the beginning of the sores, and the first thing that, in this respect, will show absolute glanders, for harmless pimples are sometimes seen upon this same part. At this period the sore has a sharply defined border, is roughened at the bottom, is of a dull gray color streaked with blood-colored lines; or, if the attack approaches the acute form, these sores become bright red or violet in color. The sores, once formed, begin and continue to discharge a considerable quantity of pus, which, not infrequently, forms a yellow, slightly attached soft scab over it. The process continues, the sores enlarge with, as a rule, no tendency to heal; occasionally, however, their edges begin to contract, its depth is filled up by "proud flesh" which finally becomes covered with a hard scab, the whole process ending in the formation of a roundish or star-shaped scar, the white color of which shows clearly on the red of the membrane surrounding it. The appearance of such a scar should not be looked upon as indicating that the animal has recovered, for while its presence shows that a check of some sort has occurred in the progress of the malady, and an effort, on the part of nature, to repair this effect of the disorder, it does not, in any way, indicate full recovery; on the contrary it has been shown over and over again that the systems of these animals retain, in one way or another, the virulent properties of glanders, from which all the ill effects of an acute attack may be conveyed to another.

Enlarged Glands under and between the lower jaws are inseparable from the sores in the nostrils, although these last may be so high up in those cavities as to make it impossible for the examiner to see them. The swellings may appear upon either one or both sides, and be smaller or larger than an English walnut. At its first appearance it may be a little soft and painful upon pressure, but it soon becomes hard, immovable, and *perhaps* fixed tightly to the skin covering it and to the jaw-bone.

General Symptoms are not usually well marked; debility, unthriftiness, uneven or diminished appetite, dulness, with slight fever, may be observed at first; but, even so, as soon as the local symptoms are well developed, whatever there may have been in the way of general disturbance not unusually subsides and the animal, except for the local signs, seems in good health. Sooner or later, however, it may be weeks or even many months, this stage of the disorder gives way and, perhaps because of the great amount of the poison which has been gradually accumulating in the system and almost imperceptibly weakening the vital forces of the animal until he has become better soil for the propagation of the germ, the full effects of which have been so long resisted, the acute form suddenly appears and the animal may die from it within a few days; or farcy, in one or other of its forms, may show itself.

Although the nasal discharges, the peculiar sores inside the nostrils, and the characteristic swellings under the jaws, may be looked upon, when existing together, as a sure indication of the presence of glanders, it is by no means rare to meet with cases in which one, two, or even all of these signs are absent.

Dry Glanders, as such cases are called, is by far the most dangerous form the disorder can assume, so far as the spread of the malady is concerned, as they may otherwise offer nothing, even to the rather close observer, that will lead to the suspicion of its existence in them, until after a very long time; yet they readily infect healthy horses and it is just these cases which maintain and propagate the disease in stables, in those instances in which outbreaks occur from time to time, often at long intervals, without any assignable cause. A post-mortem examination of the lungs, liver, spleen, bronchial or abdominal (mesenteric) glands, one or all of them, will show, in these instances, the presence of small, hard, round, objects, varying in size from a double B shot to a small pea, more or less plentifully distributed throughout their substances; and it is in these nodes that the seeds of the disorder reside.

The thermometer offers the only known means through which one of these cases may be selected out from a stable full of horses; and its use, for this purpose, must be so precise and long continued as often to make the examination either without any sure result or quite expensive. Still the author has often employed it,

and always with good result, when the necessary conditions have been fulfilled.

To apply this test the temperature of every horse that lives in the stable must be taken at the same hour each morning and carefully recorded. The animals may then go to their usual work for the day. The temperatures are again to be taken at the same hour every evening, preferably between five and six o'clock and not until every animal has been in his stall for at least two hours. The feeding must be done at the same hour every day and the food must be of the same materials.

Any animal that shows an even normal temperature, both morning and night, for five days, may be looked upon as not having any form of glanders, and need not be examined further. If any animal shows an abnormal temperature, if only of one degree, *constantly*, either at the night or morning examinations, he becomes suspicious, should be taken from work and placed by himself for further similar examination. If he remains suspicious a veterinarian should be called and put into full possession of the circumstances; he will probably resort to what is known as the mallein test. The greater expense of the whole procedure comes through taking all of the horses away from a part of the day's work; still, if a case of glanders is found, this will be fully repaid as time goes on.

Acute Farcy. — The earlier symptoms are those of a more or less severe fever, accompanied by shivering fits, an unhealthy looking coat, considerable thirst and loss of appetite, with a temperature of from 103 to 105 or 106, rarely as high as 108. The pulse and breathing movements are faster in good proportion to the amount of fever present, nothing more.

After a short time of this, perhaps a day or a little less or a little more, the early local symptoms appear. These are generally, but not always, confined to the limbs; there is a wide-spread general swelling of the skin, extending to the parts immediately beneath; the local surface is hot, painful, and, if a leg is implicated, *great lameness*. This condition may not be persistent from its first appearance, it may come and go to a certain extent for a while, but with each new onset all of the local symptoms will be markedly increased.

After a little, following the swellings, the hard lumps, called farcy buds, begin to show themselves, together with hard "cords" running from them. The oncoming of these "buds" and "cords" may be sudden, that is, the swollen and painful condition may have existed for a day or two without having shown exactly when the buds were to appear, when, rather unexpectedly, they are pushed beyond the general surface and attract the attention. In size they vary from that of a pea to that of a cherry; their edges are not sharply shown, and they are located either in the skin, the tissues immediately underlying it, or, rarely, to some extent, in the muscle itself.

In a few days the buds will begin to soften at the center of their

tops, the skin gives way and open sores are formed which are known as "farcy ulcers." They are deep, angry looking, have ragged edges, and are disposed to increase in size by the constant giving way of their margins; they discharge a grayish white, creamy-like thick liquid, somewhat tinged with blood, and which, to a small extent, sticks around the edges of the sores, forming often a brownish colored crust. If the sores are near enough to each other they may run together, thus forming a large, foul-looking, many-pitted ulcer, of an irregular shape, and a surface that bleeds easily.

The "**Cords**" are full, hard, and painful to the touch; in a little while after they appear their surfaces become swollen at various points; these swellings soften, after a time, open, and discharge a yellowish pus-like fluid. They may, as in the case of the "farcy ulcers," join each other after a time, thus making a very unhealthy looking sore, rather long in proportion to its width, the inside of which is filled with a sticky, blood-stained, pus-like fluid.

During this whole process there is a fever of a remittent type, repeated shivering fits and patchy sweatings; great and rapid loss of flesh with prostration of strength, which soon becomes extreme and the animal dies exhausted. Acute glanders often accompanies and helps to terminate this form of the malady.

Chronic Farcy. —The symptoms here are almost entirely local, there being very little, if any, fever shown. Or if, as rarely happens, there is slight fever, it will be of a well-marked remittent type, more so than in the acute form.

The local symptoms will be those of the acute form very much lessened in force, speed of development, and general behavior. The location of the "buds" is, that, generally, where the skin is thinnest, as the inferior part of the chest, inside the forearms, along the belly, over the flanks; and inside the thighs. The "buds" are, as a rule, in the skin; the larger ones may extend to the deeper tissues. Their course of development is variable; they may be widely separated and appear about the same time, or the first crop may be joined in a few days by others, which will probably be smaller in size. Their edges are sharply defined; hard at the bottom, and, as the period of opening is reached, they become more and more pointed in shape at the top. When the "ulcers" are formed they discharge a thin, pale, yellowish pus and have but little, if any, tendency to heal. The "cords" may not be present at all or, if they are, it is more likely that they will be shown after the "ulcer" has been formed. The whole operation is a sluggish one, and in certain rather rare cases the "ulcers" have been known to heal and the horse to return to apparently good health; still, an animal of this kind is not a safe one to put among others that are healthy.

Treatment naturally divides itself into the preventive and the curative. Prevention will consist in, so far as possible, keeping all

diseased animals, or anything that has been used in connection with them, from coming into direct or, to a certain extent, indirect contact with others, as already indicated. All diseased or suspicious animals should at once be taken away from the stable in which an outbreak has occurred, and so kept until all suspicion has been set at rest. The premises should then be disinfected in the following manner: the mangers as well as the walls from floor to ceiling, and the floors themselves, in the infected stall, and perhaps for two others on each side of it, should be well scraped, next thoroughly washed by having water, at as nearly the boiling point as possible, freely and thoroughly dashed over them. The premises should then be allowed to become *thoroughly* dry. After this is done some chemical means of disinfection had best be used, although this is not so important as in some other infections, as the germ of glanders is easily killed by heat and dryness. Fumigation with formaldehyde gas is undoubtedly the best of all measures of this kind where it can be accomplished properly; or chlorine gas generated from black oxide of manganese and hydrochloric acid, or in any other way, of which there are several, is an efficient disinfectant for the purposes under consideration. It need hardly be said that during this operation all doors, windows, cracks, or openings of any kind, must be carefully stopped up; and everything that is alive taken out of the building and kept out for at least two hours after the last of the gas used has been generated. The whole process should take at least six hours. It is not practicable in ordinary stables or in barns that are open to the roof.

It will be as well, perhaps, in these instances, after the cleansing operation first advised has been *thoroughly* done, to give the stalls, walls, floors, and partitions two or three good coats of strong whitewash which contains six to eight ounces of crude carbolic acid to each gallon of the whitewash. All stable utensils, harness, clothing, etc., had best be destroyed, boiled in water, or put into a closed room which can be kept at a temperature of about one hundred degrees of *dry* heat for from five to seven hours.

Much might be said here in relation to the better means to be used in stamping out the disorder entirely, as several similar diseases among animals have been, in this country; but when that effort is made, the work should be under the supervision of the general government. It is at present impracticable, for one great reason at any rate: *all* of the cases cannot be recognized by any possible means that have as yet been discovered, but the writer has been able to stamp it out and keep it out from among something over nine thousand horses belonging to the same corporation, contained in some forty odd different stables, in several of which glanders had been present for a long time and had previously killed a large number of animals.

Curative Treatment. — In some of the states and territories any person who knows of a case of glanders is obliged, under penalty,

to report its existence to the local authorities, who then, generally, take summary possession of the animal and kill it out of hand, in which cases they disinfect the premises. If, however, medical treatment is desired, and it had best always be used in cases that are no more than suspicious, there is nothing better than the old "farrier's ball"; this consists of powdered sulphate of copper and powdered gentian root, equal quantities, three ounces, powdered Spanish flies, one dram; the whole to be thoroughly mixed together while dry; it is then to be mixed and rubbed together with a sufficient quantity of molasses to make a mass of about the consistency of rather hard putty; this mass is then to be divided into twelve equal portions and each portion rolled in a sheet of very thin brown paper until it is formed into a "ball," which will be round, about two inches in length and three quarters of an inch in diameter. One of these "balls" is to be given night and morning, just after the horse has eaten, for as long as may be required. As there is quite a little risk of inoculation in giving the ball, unless one is proficient in the practise of placing it at the extreme back of the tongue, it will be better to shake the powder, properly divided into twelve parts, up with a teacupful of molasses and water and to drench in the usual way from a bottle. A heavy dogskin glove had best be used in either case. Some animals will eat the powder, if it is well mixed with a quart or so of dampened grain feed.

In addition to this it will be wise to give one ounce of the sulphite of soda, mixed with a cupful of water, two or three times a day.

Many an animal has apparently recovered from chronic farcy, and it is reported upon good authority that a few cases of acute glanders have seemed to get well under this treatment. Still it must be remembered that such "recovered" animals are, perhaps, not unlikely to suddenly become centers of a new outbreak; and that attendance upon them, unless all precautions are very carefully attended to, is a dangerous matter, as a man will easily become inoculated through broken skin, and that glanders in him always proves fatal.

Tuberculosis — Consumption.

This is an infective disease and for its occurrence depends *entirely* upon the introduction of a germ (bacillus tuberculosis) into the system of an animal which contains good soil for its propagation and spread. The germ was first absolutely discovered in 1882.

The malady is of very wide distribution and of ancient history. It affects, most commonly in the order given, cattle, horses, dogs, and sheep, of the animals now under consideration; but it is, undoubtedly, the cause of death among men and cattle to a larger extent than any one other disease.

In Cattle, tuberculosis has been known and fairly well described, at various intervals and under various titles, from the time of the

promulgation of the Mosaic laws to the present day; and during all of this long period, notwithstanding all of the measures that have been undertaken to prevent its extension and to cure those affected with it, both cattle and men, it has claimed and still claims its thousands and thousands of victims each year.

Causes. — The germ is most commonly transmitted by the living together of the affected and the healthy. It has repeatedly been shown, if a consumptive animal is put among a herd of healthy cattle, that the disorder will begin to show itself among them all, to a greater or smaller extent, after a shorter or longer time.

It is very probable that the greater part of the new infection takes place through the air; not that the germ, as such, is exhaled into the air by the sick and inhaled by its neighbor, but that in coughing, or running from the nose, the diseased animal has deposited in the barn or about the premises a certain amount of fluid material containing the seed, and that after the fluid has become perfectly dry, the germ, which is very, very small and capable of living, under nearly all usual conditions for a long time, rises into the air with the other dust and is inhaled into the air passages and lungs by others. Other methods of infection are by cattle licking each other, the lodgment of the infected dust upon the hay, which is afterward “fed out”; in which instances the first noticeable signs will be in the throat or some part of the digestive organs. Milk from a sick cow will produce the disease in calves or pigs to which it may be fed.

The proper soil for its germination is induced by constant stabling of the animals, especially in such buildings as are badly ventilated and drained; feeding innutritious and watery food; overproduction of milk or young; and in breeding. While it is an undoubted fact that a tendency to the malady is inherited from the parents, because of their constitutional lack of stamina being transmitted to the young, it should be distinctly understood that the conveyance of the disorder itself, by these means, is extremely improbable. When instances happen in which it seems as if this *must* be the cause, it is far more likely that the young animal has been allowed to suckle from a diseased mother, or else it has been allowed to remain in a contaminated building.

Symptoms. — While not always so, it is generally true that tuberculosis is of slow development and runs a chronic course. The symptoms vary somewhat, depending upon its location in the body.

In the Lungs there is at first a weak, short cough, which, however, as the disease there makes a considerable progress, becomes deeper, more difficult, and paroxysmal. It is more likely to be shown early in the morning, after drinking, or whenever the animal “gets up”; enforced exercise is apt to bring on a paroxysm. Breathing is more or less hurried and finally becomes distressing. *The pulse* is generally undisturbed at first; it afterwards becomes more rapid and small,

either in proportion to the amount of fever present or to the increasing debility. Its examination has no particular value.

The Temperature is at first not very markedly disturbed; there may be a rise of one degree noticeable at the latter part of the afternoon. Later it rises to one hundred and three or one hundred and four, and may be, rarely, as high as one hundred and six or one hundred and seven; but even at this stage it is apt to go up and down; the highest readings of the thermometer will generally be got quite early in the evening.

Nutrition is sometimes seriously interfered with; at others, the animals keep in good flesh, have healthy-looking coats and bright eyes, even though the lungs are extensively diseased.

In cases where the high temperatures are long maintained the animal gradually loses flesh, the hair becomes dry, and the skin hard and tight over the ribs; the appetite gradually lessens; the digestion is upset; the secretion of milk, which may have been remarkably good up to this time, falls off considerably, the eyes lose their luster, are sunken in their sockets, and bunches may or may not appear upon various parts of the body, as on the neck or in the throat, more commonly.

Abdominal Tuberculosis proceeds much in the same way as that of the lungs, excepting there is no cough; and that cows are more apt to come in heat frequently, are less likely to conceive, and abort more frequently.

Tuberculosis of the Udder is not uncommon and it should be *fully* understood that milk from such animals should not be given to any others to drink and should not be used for cheese or butter-making, because it is surely full of the germs, whatever may be thought of the milk, for these purposes, which is drawn from consumptive cows in which the udder itself is not diseased. There is at first a widespread, rather firm, but painless swelling of a portion, or more rarely the whole, of the udder. After a little these swellings become harder and harder, the milk grows more watery, until finally the diseased portions become "as hard as a rock."

General Tuberculosis very frequently happens. In it the symptoms partake of a mixture of all of those described, in a variety of combinations, together with, sometimes, lameness, swelling of joints, and enlargement of the ends of some of the bones.

The fact of the matter is that it is often extremely difficult, by any physical examination that anybody can make, to determine whether an animal is tuberculous or not, unless indeed by using the tuberculin test, which, in proper hands, is almost absolute. There are hundreds upon hundreds of animals that, after a most careful and skilful physical examination, will seem to be in "the pink of perfection," that, upon examination after death, from some

accident or for beef, will be found to have been tuberculous to a degree that will cause the greatest surprise.

Treatment. — This again divides itself into the preventive and the medical.

Preventive treatment is so large a matter, so far as the entire extinction of the malady is concerned, that it can only be undertaken by the general government, and the proper time for this is "not yet."

So far as individual herds are concerned, all animals that are known to be diseased should at once be removed from the others, the bad cases killed, and the bodies properly disposed of. The remaining ones must be kept in the open air as much as possible; if they can be turned into hill pastures for the summer and kept in a field with adequate shelter through the winter, the arrangement will be the best possible and certain of them may recover. The question here is, will the ends warrant the loss and trouble of the undertaking? It will perhaps be better to make them into beef as soon as possible and accept some present loss rather than a possible total one at some time in the future.

The absolute disinfection of premises is a matter of considerable difficulty and expense, especially when animals are kept in large, open barns, more or less full of fodder. The formaldehyde gas will have to be used in addition to the other means of disinfection already described. Some cattle owners who have undertaken to "clean up their herds" have found it less expensive and troublesome to build new "cow sheds" and put into them only such animals as are found, by application of the tuberculin test, to be free from the malady, and to introduce no new animals, except those of their own raising, until after they have passed that test.

Medical Treatment. — Among all the drugs in the list there are none that will "cure" consumption. If, however, it is desired, for any especial reason to undertake such measures, there is nothing better than cod liver oil and iodide of potassium, given two or three times a day in fairly full doses. It is undoubtedly true that life may be considerably prolonged, in this way, in many instances. If the digestion becomes upset by these measures the doses are to be lessened. The food should be very nutritious.

The tuberculin test consists in injecting a certain amount of Koch's tuberculin serum beneath the skin when, after a proper length of time, the disorder, if present in the animal, even in the smallest degree, will be declared with a certainty which is most remarkable; in proper hands and under favorable conditions, easily obtainable, its declaration is practically absolute. As the test is really a chemical one, it should be done with all the precision and delicacy that such tests usually demand, in order that sure results may be reached.

In the Horse tuberculosis does not appear very frequently, although it certainly does so at times; nor is it certain whether the germs giving rise to it in them come from cattle or men. It may gain access through either the breathing tract or the stomach. The feeding of tuberculous milk from cows has produced it in foals.

That horses do not usually furnish a good soil for propagation is shown by the fact that it is extremely difficult to make a successful experimental inoculation in them, with poisonous material taken either from cattle or men.

Symptoms are not distinctive. When the lungs are infected the symptoms will probably be those of a more or less chronic bronchitis: cough, emaciation, which is rapid at times, increasing debility, loss of appetite, difficulty in breathing, and frequent urination.

The temperature is uneven but does not rise to as high a point as in cattle. The pulse furnishes no particularly valuable signs, simply keeping pace, in the usual way, of fever and increasing debility.

When the digestive apparatus is affected, the symptoms will be those of cattle in the similar situation. At first constipation and diarrhoea will alternate, afterwards an uncontrollable diarrhoea appears which rapidly so debilitates the animal that he dies from physical exhaustion.

Treatment should be directed to allaying the symptoms of the various disorders of the lungs or digestion, as they may appear, under rules given for the various disorders in another part of this volume. If consumption is actually present the animal cannot live, although death may not take place for from six to twelve months, or even longer.

In Sheep the malady is rarely seen; it exists, perhaps, in about fifteen hundredths of one per cent. Infection is from living with diseased cattle and from drinking milk from them. The symptoms are those of cattle, but particularly great loss of flesh, white visible membranes, and cough.

In Dogs consumption is not infrequently seen, but still it does not exist among them to anywhere near the extent in which it is present in cattle and men.

The germ is introduced either through the nostrils, as when an animal lives in the house or room of a consumptive man and inhales the dust, or through the stomach, in those instances wherein the dog is allowed to lick up the sputum coming from a diseased person, or to eat food that has been chewed by them.

Symptoms vary greatly, depending upon the location and extent of the disorder. The symptoms usually shown are those of some chronic affection of the breathing apparatus with a persistent cough. If the animal is to die from it he loses flesh rapidly, coughs harder, breathes with more difficulty, loses strength, as first shown by the

uncertain movement of the hind legs in walking, there is irregular fever, and, finally, an exhaustive diarrhœa.

Treatment. — In the early stages, in fact before it can readily be ascertained that consumption is really present, the dog should be treated, for the symptoms presented, under the general rules — good nourishing food and not too much of it, cod liver oil, and a pill of citrate of iron and quinine; one grain of each for small dogs and two grains of each for large ones; a pill to be given three times a day. Good attention must be paid to the digestion; if too much constipated, increase the dose of the oil, or give an ordinary tablet of cascara, one half for small animals, each evening, for as long as is required. Diarrhœa will scarcely be present so long as the iron pills are used, until the case has progressed so far as to be hopeless. A long standing case cannot be cured; and in any recognized case, because of some danger of communication to man, it will be much safer to destroy the animal than to treat him.

The tuberculin test sometimes gives good results, but is rather apt, in dogs, if the disease be present, to give rise to symptoms that end fatally.

Lockjaw — Tetanus

This is another infective disease, the presence of which depends upon the introduction of a certain germ (discovered in 1884) into the blood of a living animal. The germ lives freely outside the body in the soil, particularly those that are rich in animal manures, perhaps especially that of horses. Its geographical distribution is practically unlimited, although it is much more prevalent in hot than in cold climates.

Any of the animals may have it, but it is most frequently developed in them in the following order: horses and mules, sheep, cattle, and dogs.

Causes. — The germ is most frequently carried into the body by wounds, penetrating through into the blood, made by objects having infected soils attached to them; or when, after a clean wound has been received, it becomes contaminated by a direct application of dirt to it, as from street dust, or a soiled handkerchief, piece of dusty bagging, old dusty cobwebs, dirty hands and finger nails, etc. It is not probable that it is conveyed through the stomach.

The germs having been received into the wound remain there and the body becomes affected through a poison developed by them at that spot; this is a remarkable variation from the usual course pursued in diseases of this class.

General Symptoms. — After the wound has been made, and in a period lasting from six hours to six weeks, generally within a few days, muscular spasm begins to be shown, more particularly in the neck and head, spreading from them to the trunk and legs. The nose

is at first protruded upon an outstretched stiffened neck, the eyes are drawn back into the sockets, which throws the jaw up over them, the back and legs are more or less stiff, and the whole picture presented is one peculiar to the disorder, and when once seen will not be forgotten.

Because of the spasms of the head muscles the power to chew food is very much interfered with or lost entirely; if the muscles of the throat become involved, swallowing becomes more or less impossible. The back may be curved up or down, it is most generally down; and the belly becomes tucked up and the animal constipated; the legs, almost or quite incapable of bending or being bent, are stretched out both behind and forward and appear like four bracing stakes. If the muscles of the ribs become implicated, *breathing* is shallow and frequent. The *pulse*, although the artery feels hard under the finger, is not particularly disturbed in number, even though the breathing movements are as many as forty-eighty to the minute. The *temperature* at first is but little, if any, elevated; if it does rise, the elevation does not remain above the normal for any length of time together, unless the animal is growing worse. Sweating is at times profuse.

The spasms of the muscles, though never entirely absent, occur with greater intensity, at irregular periods, and their frequency is increased by great light, any sudden or continued noise, as well as by the approach of strangers, or if he falls down, as he is not unlikely to do at any time, if his legs become very stiff. During the paroxysms all of the symptoms are considerably increased in severity, and if the repetition of them becomes frequent or they remain at long periods at a time the animal will die.

As the disease grows worse and a fatal termination is to be the result, all symptoms increase in intensity; the breathing is very rapid and may be from eighty to one hundred in the minute; the pulse hard and from seventy to ninety in the minute, in horses; the *temperature* becomes elevated to one hundred and six or one hundred and seven; and much higher just before and, for a little while, just after death, so high, possibly, as one hundred and twelve. The brain generally remains clear almost to the end, and because of this and the great suffering, such an animal, if not mercifully destroyed, is a pitiable object.

In Cattle the particular differences to be noticed are the frequent drawing back of the lips; the back is arched; the hurried breathing does not appear so early in the attack, gases form in the paunch so as to greatly distend the belly, in a few days, and the spasms are not so frequent or severe as in the horse.

In Sheep, the legs, beginning with the hind ones, are stiffly stretched out, the animal does not move, the tail is stiff and carried straight out. After a little time the animal falls down and lies with

the legs stiffly straightened out, with the neck drawn backward; which increases the difficulty of breathing.

In Dogs general tetanus is rare, so much so that it was formerly supposed this animal was not affected at all by the disorder. Still, later experience has shown they do have it, at times. The affected dog will show a stiff, elevated head and neck, the ears stiff, anxious expression of the face, a puckering into folds of the skin of the forehead; the legs are stretched out and stilty, and the voice is lost because of the stiffness of the muscles of the jaw and throat.

The Mortality is very great: in horses from seventy-five to eighty-five per cent; in cattle from seventy to eighty; in sheep about one hundred, or nearly all of them; in dogs it is much smaller. The periods at which the fatal termination is reached are variable. A quickly developed case never recovers. Horses live about a week, although the period may be anywhere from one day to two or three weeks. Recovery in about three weeks.

In Cattle the course is not so rapid and the disease runs its course in about three weeks. A fatal end may come anywhere from two days onward, *after full establishment* of the symptoms. Recovery is from two to three weeks.

In Sheep death usually takes place in about one week, although it may happen in two or three days.

In Dogs the rapidity of the course will be about as in sheep; the end is not so universally fatal. Recovery may take place in from twelve to fourteen days.

Treatment. — The wound should at once and for all be cleansed as thoroughly as possible under the given circumstances, by removing all foreign substances that can be found; syringing out thoroughly and repeatedly with a solution of one part of corrosive sublimate to one thousand parts of water; and cutting away or burning out the tissues that may have become contaminated, as far as possible, with a sharp knife, a red-hot iron, or, perhaps better than either, a *few* drops of pure carbolic acid, or, in dogs, pure nitrate of silver instead of the acid. This cannot be done always, either because of the stiffness of the animal or that the attempt to do so will cause strong and persistent spasms, in which cases this part of the treatment must not be undertaken. The animal should then be placed where the light is dim, the air good, as far removed from noise as possible, and seen only by his nurse, who should always be the same individual, an acquaintance if possible. For it is through careful, quiet nursing *only*, that recovery may be hoped for. Horses had better be put into slings at once so that they may be saved from falling if the legs become stiff.

The food should be very nourishing and made quite soft by the addition of boiling water, and allowed to get cold before being

offered to the animal. Ground oats, corn-meal, the last bulked with a *little* wheat bran, if necessary; no hay or anything that must be chewed much before it can be swallowed, excepting a very little *freshly* cut grass, if it can be obtained. All food not eaten should be removed before it gets soured. For dogs, strong beef broth, milk, and raw eggs. The food should be given often, each two or three hours, and in small quantities at a time. Fresh water in large quantities should always be kept within easy reach of the animal. No attempt to relieve constipation should be undertaken unless considerable annoyance is caused by its presence. Manure may be removed from the larger animals with the hand and arm; injections of strong, warm, soapy water may be given the smaller ones, but either operation is apt to excite them considerably.

Medication, if used to any considerable extent, will do more harm than good, because its administration adds so much to the general excitement. The writer has had very good success with cases in which he has used the sulphate of atropia, a product of the belladonna plant. Three grains of this agent, for a good-sized adult horse, is folded in a piece of *very* thin tissue paper one inch square and slowly and carefully pushed into the mouth through the space between the front and back teeth, and allowed to remain there. It may be given two or possibly three times a day, at equal intervals. The dose of this very poisonous drug must be varied for the different animals and for young ones. (See dose table at end.) Further medication is not recommended.

In a stall or box in which a case of this disorder has been kept, and after the animal has been removed from it, the floor and walls should be thoroughly cleaned from all dust and manure, by dry scraping and brushing,

There is a serum (anti-toxin) the use of which will prevent the development of lockjaw in instances wherein the germs have gained access in the usual way. But in order that it may be surely effective it must be administered before any symptoms of the malady are shown; it probably possesses no curative powers when the disease has developed.

Pox — Variola.

Variola affects horses, cattle, sheep, and dogs. It is of ancient history and widely extended occurrence. Sheep-pox and small-pox (of man) are rather dissimilar to the others and were probably brought to us from the extreme East.

Causes. — It is a contagious infective fever accompanied by a rash which ultimately produces larger or smaller pustules that, in the end, form scabs and drop or are rubbed off. The contagion is both direct from a sick animal or through the air in infected premises. It is contained in the pustules, the scabs, blood, secretions, excretions,

expired air, and the scurf from the skin. The contagious principle remains active for a considerable time and, in sheep particularly, may be carried comparatively long distances. One attack is all that the same animal may be expected to have.

General Symptoms. — The disorder will begin to show itself in about one week after it has been “taken,” when there will be a marked feverish attack, accompanied by some signs of nasal catarrh and general redness of the skin. Suddenly, upon this red surface, little red spots will begin to be shown which soon look like pimples; these, growing harder, get to be about the size of a millet seed or a little smaller, and are surrounded by a red ring. After a few days the tops of the little pimples lose the hardness and bright red color and take on the appearance of small blisters of a bluish white color. This eruptive stage takes from six to eight days and, with the filled blisters, the pocks are fully matured. Following this, the blisters turn into pustules; this operation takes place within two or three days, at the end of which the fever, which disappeared in a marked degree with the beginning of the eruption, now reappears. The pustules dry up little by little into, first, yellowish crusts, afterward becoming dark brown scales, which fall off leaving behind white, glossy, or brownish red scars. This last process lasts from three to five days.

Horse-pox is not as commonly seen as formerly, and when it makes its appearance does so in certain districts, not in single cases. It may be transmitted to sheep, cows, and men.

Symptoms. — There is at first a rise of temperature and loss of appetite. This is soon followed by a swollen, hot skin at the back of the pastern bones, under the fetlock, that may, in certain instances, extend upward to some little extent. This same appearance of the skin may also be rarely noticed on other parts of the body, especially in the neighborhood of the nose and lips, sometimes extending into the mouth and nostrils. With the swelling of the skin at the pasterns the animal becomes quite lame and if made to move lifts his feet high off the ground. After a little the blisters appear and the disorder progresses as described. The whole process will occupy some three or four weeks when all will, generally, be right again.

Cow-pox. — The contagious principle is not so easily and widely spread as that of sheep, and is mainly carried by the hands of the milkers going from diseased animals to the healthy ones. There is also some reason for believing that a person, recently vaccinated against small-pox, may convey the disorder to cows by milking them. Cow-pox can be transmitted to sheep, horses, and men.

Symptoms. — Fever is absent or only slightly marked, there may be some slight disturbance of the general health, best shown by the decrease in the amount of milk given, and the milk may be thinner. It is possible that the slight decrease in the milk is because of the

pain caused by handling the sore teats, in milking. The pimples may be larger but are less in number and vary somewhat in color in different skins. The whole process lasts about three weeks in a given animal, but its progress through a herd is slow, as all of the cows, with very few exceptions, will sooner or later be attacked. Bulls, oxen, and young cattle are less frequently affected.

Sheep-pox is of more importance than that of any other animal. The infectious principles are conveyed in the air as well as being fixed; its vitality is so great that a building into which it has been introduced will remain infected for five or six months. It may be conveyed, by an animal that has had it, for six weeks after apparent recovery. The germs are also conveyed by infective sheep, by dogs, wool, skins, manure, fodder, the clothes of people, railroad cars, etc.

Symptoms. — Within from four to seven days after exposure there is shivering, fever, depression, shown by a hanging head, considerable weakness, and loss of cud and appetite. The temperature rises to one hundred and four or one hundred and five, perhaps a little higher; pulse and breathing are more frequent than normal, in proportion to the fever present. In a day or two the red spots, etc., appear upon the skin where the wool is not thick, especially upon the head, near the eyes, nose, and mouth, or on the inner surface of the legs, chest, and belly; rarely, it may become more widely spread.

On the fifth day after the eruption the pimples become whiter and show the red ring; if they lie closely, as on the head and about the eyes, the neighboring skin becomes very much swollen. The temperature now falls and within a few days the pimples increase in size and contain fluid. On the sixth or seventh day after the eruption the pocks are "ripe," from which time onward the pimples become pustules; the temperature again rises, the symptoms of acute catarrh of the breathing apparatus and the eyelids appear, with a more or less abundant fluid discharge from both the nose and mouth, and there is difficulty in both swallowing and breathing; diarrhoea may appear. The head becomes swollen, the skin has a bad smell, the pustules wither and dry up, the brown scales appear, finally leaving the white or red scars. The disorder continues in an ordinary case for about three weeks. Unfortunately there are many variations of the usual type, in this animal, some of which, not infrequently, cause a large death rate, which is not at all usual in the other animals. Several of the pocks may run together and form a large, unhealthy sore and the sheep die of blood poison. Lung or throat difficulties (croup) may appear and death be caused by suffocation, or if the animals live they are left greatly exhausted, in an unhealthy condition and perhaps lame or blind.

If the disorder is introduced into a herd, only two or three per cent escape infection; the mortality is from ten to twenty per cent under ordinary circumstances, and fifty or more per cent under unfavorable ones.

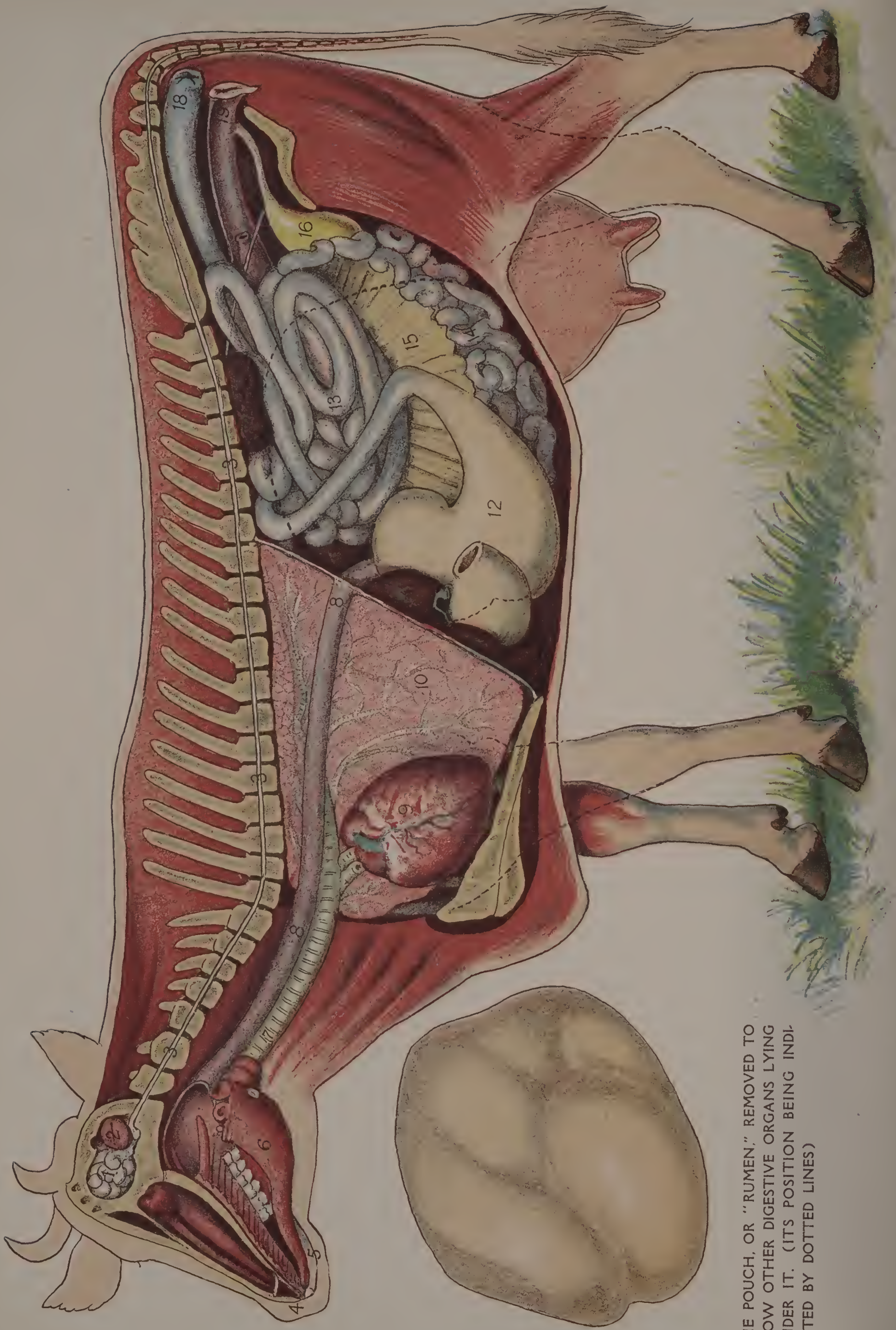
Dogs seldom have pox, although it is possible for them to do so. When it occurs the course is light, regular, and is followed by recovery in from two to three weeks.

Treatment. — As the disorder runs a regular self-limited course there is not much to be accomplished by curative measures. The skin can be kept clean and a little cooler by washing the diseased portions with saleratus (bicarbonate of soda) water; one tablespoonful of the saleratus to each one quart of water used; or with a solution of borax in water, as strong as it can be made, using the crystals of borax, not the powdered agent. In large flocks individual applications or administrations of any kind become practically impossible. In the few cases wherein throat, lung, or other complications arise, it may be possible to treat the disease which has been set up, under the general rule; as, for instance, the confluent variety, sometimes appearing among sheep, may receive the treatment laid down for septicæmia, etc. The food should be sound, clean, and nourishing; the premises as well cleansed and disinfected as possible, and there is no better method for this purpose than that recommended in glanders, excepting that the carbolic acid must be used in the strength of six ounces of the pure acid to each gallon of the white-wash. It may be applied, one coat at a time, at intervals of a week or ten days, until after the last case has recovered; and in a sheep-barn for a longer period, as already indicated, unless the formaldehyde gas can be used, which is extremely doubtful in this class of buildings. Protective inoculation is possible.

Lump Jaw — Actinomycosis.

Under the first of these titles a disease of the jaw-bones of cattle has long been recognized as occurring more or less frequently.

Causes. — The disorder is due to germs which grow upon various plants, some of which, as barley, rye, and some kinds of grasses, are used in their dried state as fodder, and either lodge and remain in the mouth or are passed on into the digestive organs; or the germs, developed in the usual way, may get mingled with dust, inhaled, and produce their peculiar growth in the lungs. It may also appear in the teats of cows, or gain entrance through a wound upon the surface of the body. It is not contagious, as from the animal, but, contrary to the usually accepted opinion, *it affects not only cattle, but also horses, sheep, and men.* General symptoms are not present unless the growth has taken place in some vital organ, in a sufficient degree to interfere with its full and proper action. Then, the symptoms will be referable to those affecting that organ, and the cause, if really actinomycosis, can no more than be guessed at. Local symptoms are a larger or smaller lump with a fairly smooth surface, which may



THE POUCH, OR "RUMEN," REMOVED TO
SHOW OTHER DIGESTIVE ORGANS LYING
UNDER IT. (ITS POSITION BEING INDICATED BY DOTTED LINES)

EXPLANATION OF (colored) ILLUSTRATION OF COW.

1. Brain.
2. Small brain.
3. Spinal column and ribs.
4. Nostrils.
5. Jaw.
6. Tongue.
7. Trachea of windpipe.
8. Gullet running to stomach between the lungs.
9. Heart.
10. Lungs showing bronchial tubes.
11. Liver.
12. Stomach.
13. Large intestines.
14. Small intestines.
15. Mesentery.
16. Bladder.
17. Left kidney.
18. Rectum.
19. Vagina.

be either harder or softer; as very hard when a bone, as the jaw-bones of cattle are affected, or softer when other tissues become implicated.

In Cattle the lumps usually appear in the upper or lower jaw-bones, where they may grow to a large size and implicate both the soft and bony tissues. At other times and frequently, the tongue becomes diseased, when it takes the form of a hard inflammation of that organ; this was formerly called wooden-tongue. It begins as a collection of round brown spots which are elevated above the surface; the cheeks may be similarly affected. In the throat the lumps are much softer, have a smooth surface, and vary in size from a pea to a large egg. In which case there is more or less difficulty in both breathing and swallowing. Deeper than this (they have, rarely, been found in the liver, and frequently in the lungs) their presence is only to be "guessed at," as has been said.

When in the skin and tissues immediately underlying it, the lumps usually feel firm and elastic; in size they may be as small as a small nut or larger than a man's fist; they may be the color of beef; covered with a brown crust; or with a pus-like material.

In Horses the disorder has been found to be present in the bones, tongue, windpipe, the glands under the jaws, which swell, as described in glanders, for which they have been mistaken, *and on the end of the cord, after castration.*

In Sheep the lungs as well as some of the muscles are rarely affected.

Treatment. — Formerly, unless the growth was located near the surface and could be easily reached and cut out, the case was given up as hopeless. And while an operation may be done now, if desired, it has been found that the internal administration of the iodide of potassium is *an absolutely specific remedy*. Each cow should be given daily, for fourteen days, one-half ounce of this salt dissolved in one-half pint of water. The dose may be reduced by one or two sixths when recovery begins to show itself, which should be within the fourteen days or perhaps less. In particularly obstinate cases a dose of four ounces a day may be given for a short time. The daily dose should be divided into two parts, one given in the morning, the other in the evening.

There is a great value in the use of this drug, the administration of which is generally harmless, in helping to find out whether the trouble in the internal organs is really the suspected one or not.

Strangles — Horse Ail.

This is an acute disorder, the occurrence of which depends upon the presence of a germ which is found in the discharges from the nose of an ailing animal. It will probably live for a short time and under

favorable conditions, outside the body, and be spread in the form of dust. When the poison is experimentally inoculated into the inside of the nostrils, strangles is produced; when into the skin it forms a local abscess.

Causes. — It chiefly affects young animals or any horse whose vital forces have been weakened by cold, catarrh of the upper air passages, bad climatic conditions, especially the sudden changes of the weather taking place in the spring or, to some extent, in the fall; overfeeding without sufficient exercise, continued over-exertion, long journeys on sea or land, general irregular stable management, and, perhaps more common than all, the bringing of horses from the country into large city stables, in which the germs are seldom absent, and where the animals are collected together in large numbers within a small air space.

The germs are usually absorbed through the breathing tract; they may also gain access by way of the digestive organs. The poison enters the blood and raises the temperature of the animal before the local symptoms appear. One attack protects from a second one for at least two years, generally through life. Strangles are not unlikely to show various complications.

Symptoms. — In an ordinary case the appetite will be lessened or lost, the legs, especially the hind ones, may swell a little and the animal will be listless and dull. If the temperature is taken at this time it will be found to be one hundred and three to one hundred and five, although the pulse and breathing have not yet become disturbed. Following this, after a few days, a discharge will take place from the nose, which, at first clear and sticky, soon becomes of a grayish or yellowish green color and more or less like pus; its quantity is much more profuse in young than in old animals. At the time when the pus-like discharge begins, a swelling will be found under and between the lower jaws. This enlargement, which is that of one of the glands, feels hot and is tender to the touch, and while small at first it may increase rapidly and to such an extent as to fill up the entire space between the jaws.

While, in rather rare instances, the enlargement gradually disappears and the parts return to their usual appearance; as a rule, however, soft places begin to show on its surface and it terminates in an abscess which, upon bursting or being opened, discharges a great quantity of pus, leaving a cavity or pocket which ultimately heals and all of the parts return to their usual condition.

The first rise in temperature, as described, is soon followed by a drop of from one to three degrees, and the lessened heat remains until pus begins to form in the swelling, when it again shows an increase which is maintained until the abscess has discharged, when, in favorable cases, it will fall within a short time to the normal point.

The pulse will show no material change until the abscess begins

to form, when it may become as frequent as fifty or sixty beats in the minute. A higher pulse rate is not met with unless the strength of the animal has previously been weakened in some way, or when complications arise in the course of the disorder.

The breathing will not be materially changed unless some of the discharge gets into the throat, when there will be a cough at varying intervals; or when the bunch, because of its location or size, presses against the upper end of the windpipe.

The animal will not eat well until the abscess has discharged its contents and lost its soreness; this is because of the pain caused by movements of the jaws. During the period of recovery there is often a considerably increased flow of urine, which should cause no uneasiness and needs no treatment. The average death rate is small, not *over* three per cent, and under proper treatment should not begin to reach even to that.

As has been said, strangles not infrequently becomes complicated, and it is these that are most to be dreaded.

First and most common. The poisonous effect becomes extended to the region around the upper end of the gullet and causes there an inflammation, the symptoms of which are difficulty in swallowing, heavy drooling from the mouth, and a very moist, suppressed cough. This is soon followed by a swelling of the glands which lie under the ears and just behind the upward curves of the lower jaw-bones, in the neck. These swellings, tender upon pressure, frequently become very large and give rise to extensive swelling of the skin and upper neck. Pus quickly forms in these enlargements, the surface of the swelling softens, at one or more places, opens and discharges freely; this is the most favorable termination.

In other instances, the great pressure of the swelling upon the soft structures within the throat causes them to give way, at one point or another, when the pus discharges inwardly and is very apt to fall into the lungs; and gives rise to pneumonia, gangrenous lungs, and a fatal termination.

Second. The inflammation set up by the poisonous material in the back part of the nose may extend to the upper end of the windpipe, producing a distressing whistling cough and very difficult breathing. Such a case, after recovery, may leave the horse a permanent "roarer" or "whistler."

Third. An inflammation of the skin of the head and face may take place, with the formation of a large number of small, shallow abscesses. In this way the lips may become so swollen as to be as hard as a board, and the nostrils so closed as to make breathing difficult.

Fourth. Strangles may be complicated with pyæmia. (See article on pyæmia.) It then is called *bastard strangles*. The pyæmia is generally of the more chronic form, the animal grows thinner and thinner and becomes much "tucked up" in the belly. Abscesses continue

to form inside and, more rarely, upon the outside surface of the body.

Fifth. The malady may assume a chronic form; the nasal discharges continue, much flesh is lost, and symptoms of chronic indigestion follow.

Death, when it takes place, as it is apt to do to a considerable extent in some of the complicated cases, is usually caused by general blood-poisoning. It may happen from suffocation, rarely.

Treatment. — The animal should at once be placed, as far as possible, into a clean, exceedingly well ventilated stable, but free from drafts of air; and given good sound nourishing food; hay, *freshly cut* grass, and at least six quarts of the best oats per day; if he will eat nine quarts, with relish, so much the better, as the disorder is very debilitating and strength is kept up more naturally and fully in this way than by any other and more artificial means.

Internal medication is not particularly useful, as the fever will disappear of itself as soon as the abscess is opened, and nothing will be gained by trying to “cut it short.” The animal will be a little more comfortable, however, if he is allowed to drink water in which powdered saltpeter has been dissolved. The saltpeter may be used up to one ounce a day, and eight or ten swallows of the water given every thirty to sixty minutes.

The greatest endeavor of treatment should be directed to bringing the swelling forward to the formation of the abscess. Usually there is nothing better for this than the careful and persistent application of hot poultices to the parts; the poultice may be made of flaxseed meal, or, just as well and at much less cost, “oil meal,” which is obtainable from any grain dealer. This should be mixed with boiling water and made as soft as it can be to stay in place; it may then be spread upon any strong cotton cloth, and when cool enough put over the swelling and held in place by a home-made hood, which will come nearly down to the nose and be tied closely under the jaws; if holes are cut, at where the ears come, the poultice will not shift so easily. A new hot poultice should be put on three times daily, remembering that the sooner the abscess can be brought to a “head” the quicker the case will get well and the less danger there will be of any complication. If the swelling is slow in coming to the desired point, it may generally be hastened by rubbing onto it a very little plain blistering ointment; as, powdered Spanish fly one dram, to lard one-half ounce, mixed thoroughly together and used once as directed. As soon as the abscess softens at any point it should be carefully opened with a clean, sharp-pointed knife, little by little, until the pus begins to flow, when the wound may be carefully made a little larger. After it has been opened and thoroughly emptied by gentle pressure, it may be washed with warm water and the poultice again put on twice a day for one, two, or three days, until the pus is all discharged, when it

may be taken off and the parts washed clean once daily with a mixture of one part of lysol to fifty parts of cold water; or a solution of carbolic acid of the same strength may be used instead of the lysol. In cleansing the part it will be best to use a sufficiently large piece of absorbent cotton, which can be immediately burned when it is finished with, a new piece being taken each time.

Complications must receive the treatment given to similar troubles, as they appear. The extended abscess, under the ears and back of the jaws, should be taken care of as described above.

Strangles in Dogs is said to have been noticed. The symptoms will consist of a discharge from the nose, a swelling of the lips and head, due to the formation of small abscesses, which may lead to pyæmia.

Treatment will consist in bathing the swollen parts with quite warm water for ten or fifteen minutes at a time, three or four times a day, to hurry the softening process as much as possible, opening the abscesses as soon as they are ready and keeping the parts clean with the *lysol* solution. The food should be good, given in small quantities three times a day instead of once, and consist largely of milk and finely chopped raw, lean, beef with some stale bread crumbled into the milk and fed when the bread has softened. In addition a pill of citrate of iron and quinine, two grains each for large dogs, half the size for small ones, should be given two or three times a day. If constipation is persistently present, give a medium sized dog, at one dose, one-half ounce each of castor and sweet oil, varying the quantity up or down in proportion to the size of the animal and the degree of constipation present.

There is no connection between strangles in horses and the so-named disease of dogs.

Pink Eye — Influenza, Epizootic, Etc.

Affects horses, men, and perhaps cattle. It has been known to exist and is described from as far back as the fourteenth century, during which time, even up to the present, it has been and is called by a great many different names. In fact it seems as if more than one malady had been looked upon as being that now under consideration. Some of these have been sifted out and are now placed where they belong, until, at the present time, influenza may be described as being an infectious disease which is subject to several important complications.

Causes are simply those of a highly infectious principle, or germ, the exact nature of which has not yet been fully discovered; it is passed along from horse to horse or from locality to locality in an evenly progressive way until, within a very short time, large numbers will at times become its victims. At other times it will not affect more than one or two horses in a stable, although, at the same time,

a large number of the stables in a given town will, each of them, contain a few of the cases. It may be rife in a given locality, while in another, not more than a few miles distant, there will not be a case. At other rare intervals of time it will extend over a whole country, as was well shown in the United States in 1872 to 1873.

The poisonous principle seems to be easily carried in the air, which has become mixed with that breathed out by a diseased or convalescent animal, for a shorter or longer distance at various times, and under conditions not understood. Sometimes the poisonous quality survives but a short time in such air; at others it not only seems to survive for a longer period but to be capable of being widely extended, as has been shown. The same peculiarity concerning the life of the germs within the living bodies of animals seems to exist at times.

The germ from contaminated air is inhaled, becomes absorbed, and a new case is created. While one attack is usually all that comes to one animal, a second has been known to occur. Mules and donkeys are equally affected with horses; and there exists a not entirely unfounded impression that horse distemper has been conveyed to dogs and men.

Symptoms. — In from four to seven days after the horse has "taken" the malady there will be, at first, loss of appetite, nervous depression, as shown by a drooping head and slow, unwilling movements. The internal temperature is high, perhaps, from one hundred and three to one hundred and five; the frequency of the pulse is not increased in proportion to the temperature, it may show as many as fifty beats to the minute; the breathing is comparatively slow; and the *lining of the eyelids have a yellowish tinge*. After this initial stage, which is of varying lengths, from a few hours to a day or a little more, the already high temperature is suddenly increased and may reach one hundred and seven or one hundred and eight degrees, at which high point it remains, with slight variations, for from three to six days when, rather suddenly, it drops to the normal point. At the time of the second rise in temperature the pulse increases in frequency to from sixty to seventy or even, in desperate cases, to eighty or one hundred beats in the minute; it generally continues frequent for some little time after the temperature has fallen. With all of this there will be a discharge from the nose, thin at first, thicker and mixed with pus later on, a little swelling of the glands under the jaw, and slightly hastened breathing with a little cough. There is generally a considerable loss of flesh.

Second. In some instances the nervous depression becomes extreme, when the fever is at its height; the animal not only holds his head down, but, added to this, he appears as if half asleep and is stupid; tremblings are seen on the body and legs; the hind legs move unevenly, he "knuckles" at the fetlock joints; and in a few cases, paralysis of the hind legs may take place.

Third. At times a considerable digestive trouble will be shown, which is probably caused by the considerable effect which the poison has upon the nervous system; the mouth is dry, the tongue "coated," and the horse yawns frequently. Swallowing is not easy if the mouth is very dry; constipation is present and what manure is passed is in small, dark-colored balls, which are covered with more or less slime (mucus). Later on colicky pains and diarrhoea may be shown, which is often accompanied by severe straining.

Fourth. The disorder not infrequently takes the form of complication which has become widely known as "pink-eye," called by some the rheumatic form of influenza, wherein the eyelids swell so much as oftentimes to entirely close or even turn them inside out to some little extent; there is more or less discharge, and if the lids are opened sufficiently, as with the fingers, the outer covering of the eye itself will be seen to be more or less fully covered with a white film. At other times, if the outer covering be sufficiently clear, it may be seen that a yellowish substance, coming apparently from around the pupil, has been deposited at the lower margin of the eye, just inside its outer covering. These appearances of the eye need not cause alarm, because they generally disappear as the general symptoms improve. These "eyes" are usually accompanied by more or less swelling of various joints, especially, perhaps, the hocks, although any joint may show it; the swellings are painful and the animal is very lame; this also generally disappears as the general health improves.

Fifth. Large dropsical-like swellings, without much, if any, pain, frequently appear in the legs, along the belly, and include the sheath, or udder. These should cause no anxiety as they will disappear as the case recovers.

The average duration of an attack is about fourteen days; some may recover as early as the sixth day, while others will run on for three weeks. The mortality is small. *It should be especially remembered* that other and graver complications may arise if the horse is continued at work during the early stages of a light case of influenza; these are: pneumonia; a weak heart; severe brain trouble; and inflammation of the bowels.

A good rule to follow is to take a horse away from all work as soon as he stops eating, and not to put him at work again until it is known what the trouble is.

Treatment. — As uncomplicated influenza runs a direct, mild, and self-limited course, good nursing with healthy surroundings, good ventilation, good drainage, the careful selection of good sound food, given in prescribed quantities, under the requirements of the individual animal, are of chief importance; and the better all this is done the less danger there will be of troublesome and dangerous complications. So far as medication goes there is no better mixture, for general use, than this: Sweet spirits of niter, seven ounces; fluid extract

of belladonna, one ounce; dilute sulphuric acid, forty drops; sulphate of quinine, two scruples. Mix all in a bottle and shake until all of the quinine is dissolved. The dose will be two ounces of the mixture given in tumblerful of cold water morning and night; an extra dose may be given at noon, when there is much depression; the bottle should be shaken each time it is used.

Complications must be treated under their rules, as they arise. Whiskey or digitalis for weak hearts; digestive troubles, with saleratus and common salt; inflammation of the eyelids with argyrol, twenty-four grains mixed with water, one ounce. A few drops of this mixture should be put into each eye three times daily, using an ordinary "dropper," which may be had at any drug store. The persistent high temperature may be lowered by giving acetanilid, or some other similar febrifuge. The stable had best receive a good disinfecting when the trouble is over and before new animals are put into it.

Cattle occasionally develop influenza. In them it generally takes the form of "pink-eye" although the trouble with the joints is generally more widespread and painful; the temperature rises to one hundred and four or one hundred and six; the depression and other general symptoms are those described for the horse. The duration is from two to four days only, and the attack usually ends in recovery.

Treatment will be as for horses.

It is not now considered that influenza of men and animals are identical, although many recorded instances seem to indicate that it has been conveyed backward and forward among them in certain individual instances. It is certainly true in by very far the greater number of instances that there has been no intercommunication whatever.

Formerly, a great number of cases of pneumonia were thought to arise in complication with certain outbreaks of influenza, and the cases were described as being of such origin and admixture. Recently this condition of affairs is apparently becoming to be considered as a separate malady and, by some, it is now described as:

Contagious Pleuro Pneumonia of the Horse.

For all practical purposes it may as well still be looked upon as a pneumonia occurring in the course of an attack of influenza; and *treated* under the rules given for *lobular pneumonia*. It is true, however, that greater care should be used to prevent its spread to other horses, not only those that are well, but those already sick with an ordinary influenza, by quickly and strictly separating such an animal from among others; and furthermore it will not be well for a man to shut himself up too closely with a case of this kind, or to remain, for hours together, "sitting up" with him at night in a small stable.

This caution is given in view of happenings within personal knowledge of the writer. There is no danger whatever excepting under the above-named circumstances.

Distemper in Dogs.

This always has been and still is, regarded as a very dangerous malady. It has an ancient and varied history, but is still without any specific treatment and attended by a large fatality.

Causes. — It is a contagious, infective disease, the germ of which has not, as yet, been fully identified. The poison is fixed, extends through the air, and is carried by all sorts of material that has been in contact with the sick. It is easily communicated, not only by direct cohabitation, but through the air of buildings, even when the sick animal is kept at some distance away from the well ones, and great pains taken to prevent the two from being handled by the same person. About two thirds of the cases occur in animals under twelve months old. Although the susceptibility seems to decrease considerably after, then dogs of any age, beginning with puppies two weeks old, may have it. While one attack generally frees the animal from future ones throughout his life, the rule is not without its fair share of exceptions.

As in all contagious maladies there must be a good soil for the growth of the germ before it can produce its results, and while some dogs seem to be always free from its effects, others that are moderately so may be made susceptible by being reduced by improper care, as exposure to cold and wet, too frequent bathing, over feeding, too little exercise, improper food, living in a dark or badly ventilated place, as a cellar, in fact by anything that will tend to lessen his vitality. The breed seems to have nothing to do with the susceptibility, excepting that in the way of in-breeding and with puppies that are from parents who are without sufficient out-door exercise, the vitality is always lowered in the progeny.

Symptoms. — Although the disorder may appear accompanied by such a variety of symptoms, because the peculiar poison affects, at times, so many different organs, as the breathing tract, lungs, bowels, brain, spinal cord, eyes, and skin, there will be noticed, at the very beginning, if the animal is at all closely observed, a few symptoms that are in common, at first, to all cases; as dulness, slow, rather lifeless movements, small or fickle appetite, which may be accompanied by vomiting, trembling or shivering without apparent cause, unhealthy looking coat, and a tendency to tire easily. If, under these circumstances, the temperature is taken and found to be above one hundred and three, the case should be looked upon as being "suspicious."

After this, for a short but variable time, the temperature will

drop somewhat for a while, and it is a feature of distemper that the animal will seem so well for a day or two, as to give the impression that he is entirely or nearly well.

The first well marked symptoms are, generally, a discharge from the nose and eyes, which, to begin with, may be clear and sticky, but which soon becomes thick and pus-like, and of a rather dirty gray color; the eyelids are slightly inflamed, and the skin around the margins of the nostrils is dry and cracked looking. These discharges may become very profuse, change color a little, that from the nose offensive in smell; that from the eyes so irritating in character as to produce a condition that, unless great care is taken in keeping it clean, will produce an ulcer of the outer coat of the eye that may lead to the complete destruction of that organ. It is extremely likely that, within a few days of the marked onset, a diarrhoea will be shown in which, almost at once, or later, the color will become dark green, the odor extremely offensive, and the discharges frequent in number. In an attack of this kind, which may last for three or four weeks, the appetite may remain fairly good or be lost entirely, and vomiting may or may not be present; the breathing may or may not be markedly increased in number, this depends upon how deeply the lining membrane of the breathing tract becomes implicated; there may be no cough or one of more or less importance, with gagging. During all of the time the temperature will be high, but is not evenly maintained; it may at times run up to one hundred and seven and at others go as low as one hundred and three; there are days when the animal will seem bright and nearly well, while perhaps on the next day he will seem to be as sick as ever.

Treatment. — All cases of distemper must have the best nursing possible and, to arrive at the best results, be kept in a bright, sunny room, well ventilated, which is maintained at an even temperature of about sixty-five, day and night. At the beginning it will be far safer and better to put on a "chest protector." This may be made of one thickness of "outing" flannel, cut so as to cover the breast and sides, as far back as the ribs extend; two holes may be cut at the right place, through which the front legs are to be put; the whole "protector" is then to be lined with an even layer of cotton wool, put onto the body, the edges being carried up over the back, pulled so that it will fit closely, and then sewn strongly together in front of the chest and along the back. The universal use of this "protector," in all cases of distemper, even if there seems to be no especial need of it at the early time when it is applied, will defend the body surface from temporary and unavoidable draught of air and so very much lessen liability to lung complications and encourage recovery. The food should be of a good, nourishing, easily digestible kind, and, if the appetite is good, be fed in prescribed quantities three times daily; as, for a medium sized dog, a tumblerful of milk, containing a table-

spoonful of lime water, with a teacupful of oatmeal, or crumbled stale wheat bread, or well boiled rice, in the morning; at noon a moderate sized tablespoonful of *fresh, finely chopped* raw beef, free from all fat, may be given; while the supper will be a tumblerful of *strong* beef broth, with bread or rice. If there is no appetite the diet must be approximated to the above so far as possible. The milk and lime-water had better be fed in one-ounce doses each two hours, alternated with the same quantity of strong beef broth. Two teaspoonfuls of the chopped raw beef may be given, and will generally be eaten, instead of one of the doses of the broth. Raw egg may be fed in doses of one ounce at a time; certain dogs will like this and, if so, it does them good; in other animals the egg will be thrown up and, if insisted upon, cause violent vomiting. If egg is given and the first dose is not retained, do not try it again for several days at least. If the above prescribed quantities produce vomiting in any case, they must be made smaller in quantity, but given at the same intervals of time. If then vomiting persists, everything but the milk and lime water, which may be warmed a *little*, had best be stopped. If the vomiting is then persistent a teaspoonful of iced lemon juice will often "settle" the stomach. Allow but little water at a time, three or four swallows; it may be given half way between the meals; and if the animal is vomiting give him a *little* very cold ice-water at a time.

Keep the nose and eyes as clean as possible by washing them carefully as often as necessary with a solution of lysol, fifty drops, to eight ounces of water, or, if this is not obtainable, with blood-warm water with a little milk in it; the outside and end of the nose will be more comfortable if a *small* quantity of vaseline is rubbed over them occasionally. After cleansing out the eyes put in a drop or two of a solution of argysol, twenty-four grains to one ounce of water, each time; it will help very considerably in preventing the formation of the dreaded ulcer.

From the beginning use the following powder: Calomel, four grains. Sub-nitrate of bismuth, seventy-two grains. Phenacetine, forty-eight grains. Mix, rub well together, and divide into twenty-four powders. Give one of the powders each two hours, for as long, not exceeding two days, as seems necessary; after that they may be given each three or four hours; or no oftener than seems necessary. This will help to control the bowels, lessen the fever, and settle the stomach.

The further complications are:

1. Ulcers of the outer covering of the eye which penetrate and attack some of the inner structures.

Treatment. — Call a veterinarian or an oculist.

2. **Pneumonia.** — The onset of this may be recognized by a considerable increase of the internal temperature, increased and

labored breathing, with more or less puffing of the cheeks and a dull, weak cough.

The Treatment will be that given for bronchial pneumonia.

3. **Nervous Complications.** — In animals that have been previously severely weakened, distemper occasionally begins with great dulness and depression, which gradually progresses into more or less complete unconsciousness. When these symptoms depend upon the distemper poison, the temperature will be raised, as described, in the earlier part of the attack at any rate.

Treatment will be to thoroughly move the bowels as quickly as possible. Give two compound cathartic pills, as used for men and to be had of any druggist; if diarrhoea be already present do not use but one of the pills.

3a. In this form, it rarely happens that a strong dog, not before having shown noticeable symptoms of distemper, will exhibit great nervous excitement, as restlessness, yelping, and even attacks of fury, which after a little time will be succeeded by the symptoms of depression and unconsciousness described above. In these instances there is, at first, a considerable presence of blood in the brain, which is sooner or later followed by continued pressure with more or less insensibility.

Treatment. — If seen in the first stages, cool the head by the constant application to it of ice-water, if it be possible to do so. In the second stages use the compound cathartic pills, as advised. It is oftentimes very difficult to move the bowels of these animals, and if, within twelve or fifteen hours after the pills have been given, the desired result is not obtained, use hot, strong, soapy water injections of one-half pint of the fluid, each two hours, so long as necessary.

3b. After distemper has been running its more ordinary course for a longer or shorter time, twitchings of the muscles at various parts of the body may begin to be shown. Commonly, the parts thus first affected are either the muscles of the forehead and around the eyes, or those of the legs, generally the hind ones. When the twitching affects the described muscles of the head, the sign is a bad one, the case either dying within a few days, or gradually passing into one of more or less general paralysis. When the convulsive twitchings attack the legs, one or more, the brain is not so directly implicated and the case may even recover, rarely, although more commonly, while the dog may not die, the twitching continues throughout life, in spite of all that is done to cure it.

3c. In other instances, while the animal has seemed to be doing well, he is suddenly seized with a fit; he barks, yelps, perhaps champs his jaws and froths a little at the mouth, draws his head and neck backward and to one side, falls, becomes unconscious, is seized with

spasms of the muscles of the greater part of the body, and, as showing the coming tendency toward paralysis, the manure and urine are sometimes passed involuntarily. In from one-half to one minute consciousness may begin to return, the dog gets onto his feet, but shows great weakness, or the seizure may pass directly into a long-continued unconsciousness. If the animal lives so long, paralysis is likely to follow; it may be confined to a certain group of muscles, especially those of the hind limbs or, at times, the whole body becomes paralyzed. Recovery from this condition has, rarely, been known to take place, but as a rule, unless the dog dies from extreme weakness, he lingers along with no permanent improvement of the paralysis until he has to be chloroformed as an incurable case.

Treatment of the last two described complications is very apt to be unsatisfactory. When the twitching commences use full doses of the bromide of potassium (see table); if whining and yelping are persisted in give tincture of opium in ten-drop doses, in a teaspoonful of sweet oil, each two, three, or four hours, but use no more than is absolutely necessary to overcome the symptom which the drug is given to relieve. Paralysis should be treated by such stimulants as coffee, brandy, strong beef tea with wine; with a diet of finely chopped raw beef in moderate quantities at a time, three times daily, if it is eaten with good or even fair appetite and comfortably well digested.

Fourth. — It rarely happens that, after the first symptoms are shown, the effects of the whole poison seem to take place upon the skin on the inner surface of the thighs and on the abdomen. This "breaking out" is first shown by the appearance of minute red spots which, after about twenty-four hours, develop into small nodules surrounded by a bright red ring. These nodules change gradually into small blisters and pustules which vary in size up to that of a pea, which either open and leave a sore which discharges for a time, or else dry up leaving a yellowish brown scab. Healing takes place, after about eight days, leaving a collection of bright pale red spots which continue for some little time.

At other times the eruption may be spread over the entire body, in which cases it resembles an attack of dry eczema; with this there is a bad smelling odor from the body and there will be a considerable temporary loss of hair.

This has been called the abortive form of distemper and is the least fatal of any. There is but very little itching, and the temperature drops to the normal point when the eruption appears.

Treatment is very simple; moist sore places may be dressed with any good drying powder, as one part of the oxide of zinc to ten parts of finely sifted wheat flour; or, if obtainable, the compound alum powder of the drug stores. If a very little glycerine is put upon the

scabs it will hasten their natural removal. The food should be that already recommended.

Texan Cattle Fever.

This disorder, which was formerly very troublesome and fatal, at certain times in the year, to Northern cattle, which had mingled with those coming from our Southern States, or were put into cars, stock yards, or pastures recently occupied by them, has now become almost a thing of the past, owing to the well-directed efforts of the Department of Agriculture, at Washington, to prevent such mingling.

It is communicated to Northern cattle by a tick which, living upon the Southern animal, is, by cohabitation or otherwise, transferred to the Northerner, through the skin of which he inoculates the peculiar poison.

Cattle born and raised in the South are not affected by the poison which, although apparently constantly present in their blood, does not seem to exert, as a rule, any markedly bad effect upon them.

Formerly, all of the cattle taken from the North into the "tick belt" died, with very few exceptions. It has now been found that such animals can be taken South and remain unaffected, if certain very simple measures are taken and the Northern animals are not allowed to mingle with the natives.

If an animal is to be taken South, it receives a thorough coat of any good greasy "slush," as for instance that used by railroads, over the entire body; upon arrival at its destination it is driven into a well-fenced pasture, where no natives are kept and which is free from low bushes or trees with low branches. If she is to be put into a barn or cow-shed, the building must be new or one that has not previously been occupied by Southern cattle; it need not necessarily be more than a simple shed, but should be set up on low posts. The first coating of slush may be allowed to wear off when, if the above directions are fully carried out, it only will be necessary in future to slush them up to the knees and hocks occasionally, which will be sufficient to prevent the ticks being able to gain any lodgment on the animal. Cattle treated in this way do not become immune, and, therefore, must not be allowed to mix with the native animals at any time.

Rinderpest—Foot and Mouth Disease. Contagious Pleuro Pneumonia of Cattle.

These disorders, while belonging to the class of maladies now being discussed, need receive no special descriptions, as those of them that have at any previous time been present in the United States have been thoroughly stamped out, and measures are maintained; under the supervision of the general government, which will make their re-invasion of this country extremely improbable.

Bleeding — Hemorrhage.

Hemorrhage is said to take place when, from disease or accident, the blood escapes from the vessels in which it is naturally contained, and the fluid lost contains all of the component parts of the blood.

When bleeding occurs from a wound its *treatment* is entirely within the province of surgery and must be directed toward stopping its flow as soon as possible. The usual methods pursued are tight bandaging of the parts, if the wound is where this can be done. The bandages should be made of firm cotton cloth, varying in width from one inch in small dogs to three inches for horses or cattle, and of varying lengths; for all cases in horses or cattle they should not be less than six feet long, and in some instances much longer; they should be comparatively long in all cases because, through their use, an attempt is being made to stop the flow of blood by applying pressure to the open vessels, and the longer the bandage, within reason, the greater is the possible pressure. If the bandage is made too tight and the parts between it and the heart become much swollen, or the parts between the point of pressure and away from the heart become swollen or cold, the bandage must be loosened just enough to correct these conditions, but no more. If, after applying the bandage, all goes on well, it will be better not to disturb it for twenty-four or thirty-six hours, when it may carefully be removed without danger of setting up the bleeding again. The wound should then be carefully cleaned with one or other of the lysol, carbolic acid, or corrosive sublimate solutions already recommended; and re-covered with a clean, shorter bandage, once or twice daily, until healed over.

If the wound is in a part that cannot be bandaged the hole can be plugged with cotton or oakum which has been saturated with the tincture of the chloride of iron, and must be held in place by stitching the skin over it, or in any other way that may be possible under the existing circumstances, for as long as from twenty-four to thirty-six hours, when the plug should be removed and the wound dressed as directed.

Of course there are many instances of shallow or slight wounds from which, if the animal is kept still, the blood will cease to flow of its own accord after a little time; or may be helped to do so by the use of a few stitches taken in the skin. If the wound is a large one, even if the bleeding has been stopped, a veterinarian had better be called in, if possible.

Spontaneous Bleeding, as it is called, is that in which internal hemorrhages take place; and these occur variously, as from the nose or mouth, when they are generally not of great importance; or into the stomach, when the blood escapes through the mouth; the lungs, when the show is made through the nostrils and is accompanied by

more or less coughing; from the rectum, as in the case of bleeding piles; from some part of the urinary apparatus, when it escapes through the natural passages of the urine; and from the uterus or vagina. Besides these, bleeding may take place into the bowels, the cavities of the chest or abdomen, or into a solid gland, as the liver or spleen: all of which happenings will require the services of the skilled veterinarian or physician; as will an outpour of blood into the brain of animals (apoplexy), the symptoms of which are sudden loss of consciousness with more or less paralysis. As this last condition arises, if not in connection with a blow upon the head, because of some unappreciated organic disease of the walls of the blood-vessels of the brain, its permanent cure is not to be hoped for.

The symptoms of important hemorrhages, whether the blood is lost externally or internally, are: paleness of the visible membranes, as in the mouth, coolness or coldness of the extremities, as the legs or ears; and increased frequency of the pulse with a low internal temperature of the body.

General Inflammation — Fever.

Every part of the bodies of all animals may be considered as liable to inflammation; and many deaths are caused by its effects upon various vital organs or upon the bodily system as a whole. Therefore a knowledge of its general behavior, causes, relations and effects, may be regarded as furnishing valuable aid to the better understanding of many attacks of sickness to which animals are subject.

Although certain inflammations are destructive, others, on the contrary, aid in saving the life, and returning diseased parts of the body to health. By its aid many of the blood poisons are gradually expelled from the system; wounds are healed; and broken bones become firmly knitted together. Again, a portion of the skin and structures immediately beneath it as in the case of an abscess, inflames, degenerates and dies, yet, by the continuance of the inflammatory process, the dead parts are cast off and the reproduction of healthy tissue takes place. Therefore it is seen that the process is sometimes destructive, at others constructive.

Causes. — It not unfrequently happens, in the animals, that the symptoms of inflammation seem to us to begin suddenly, unexpectedly, without any previous warning, that has been noticed, and from unknown and oftentimes unascertainable causes. In other instances it will be found to have been produced by some mechanical or chemical irritant; by the action of cold, wet, extreme heat, or by some animal or vegetable poison, the germ of which has been received into or generated within, the system of the animal.

Inflammation is said to be *acute* when it runs its course rapidly, and is attended with severe constitutional disturbance; *sub-acute* when

the symptoms although all of them are present, are less well marked and rapid; and *chronic* when they exist for a considerable time, but in a much less well marked form. Its presence in any organ or tissue so far deranges the action of the parts as to produce partial or absolute stoppage of their normal function.

Symptoms. — For a long time it has, in a general way, been considered that the external marks of an inflammatory process consist in the exhibition of pain, swelling, heat and redness, and, in a general way this may be considered as representing what takes place when internal parts of the body are similarly affected. As soon as the inflammatory action reaches a certain degree of intenseness, which, it should be remembered, it does not do, in some slight local instances, the nervous and circulating systems become affected; in which cases the general disturbance that follows is described as being sympathetic fever; or constitutional disturbance. This fever is shown by depression, slight chills, cool or cold extremities, rise of the internal temperature, increased frequency of the pulse, thirst, and loss of appetite. Sometimes the slight chills amount to absolute, continued, shiverings and it is generally thought to be true that the onset of a fever due to internal causes is more likely to show hard shivering than that which is caused by external injury. The intensity of the inflammation will depend upon the nature of the part affected, the extent to which it is affected, and the, so called, constitution of the ailing animal.

General fever may not go so far as to become located, before recovery takes place, in which instances the animal is said to have had a fever; it not being possible to give it a distinctive name because it had gained no perceptible lodgment at any one part of the body, before its effects passed off.

Treatment. — In the treatment of all fevers there are certain general underlying principles that should always be followed, with such modifications as may seem necessary in the individual cases, as they arise from time to time.

To begin with, the *cause* of the fever, should, if possible, be found and removed. Attempts may then be made to return the parts to their original condition, as is quite possible in many instances; or, this failing, to get the next best possible result obtainable, under the circumstances. Formerly, these ends were rather indiscriminately sought by under-feeding, bleeding, purging and blistering. But more recently the conviction has properly grown that an attack of fever or inflammation is not to be put out like a fire, by taking away or withholding fuel, but rather, that no return to health can be achieved excepting through nature's own power to heal; that she has her own ways of curing the various ills, which she will be the better able to accomplish if the patient can be put into healthy surroundings and kept as strong as possible, so that the vital forces, through the exertion of which the cure comes, will be the better able to keep up the

work. Under these circumstances it becomes the duty of the practitioner to understand the processes of nature's dealing, and to give material help, by the use of such medicines and measures as will aid the particular process in a perfectly natural way.

Place the animal where he will have good air, without draught, and an even temperature of from 50° to 60° F.; the diet should be varied as much as possible, fed in rather small quantities at a time, but at somewhat nearer intervals; all food that is not eaten within a reasonably short time should at once be taken away so that the animal will not have it constantly before him, as this oftentimes tends to make a poor appetite poorer. Cold water is to be freely allowed, but so long as the fever-thirst is present it should be given at intervals of from fifteen to thirty minutes, not more than five or six swallows at a time. If the fever and thirst are marked, one ounce of powdered nitrate of potash may be given, each day, dissolved in the drinking water, and taken at intervals as directed for the water. If the bowels do not move freely an apparient may be given as one pint of raw linseed oil with a heaping tablespoonful of saleratus, all mixed together and given at one dose to horses and cattle; six ounces and a teaspoonful of saleratus to sheep; and one-half ounce each of castor and sweet oil mixed together for a medium-sized dog.

If the pulse becomes soft, or at all small, milk and raw egg, if the animal will eat it, as he often will, will often give great aid; while, directly there are indications of general weakness, or exhaustion alcoholic stimulants should be given, as for horses and cattle two ounces each two, three or four hours as seems called for, in one pint of cold water or milk; sheep one-half ounce, given in the same way; dogs will do better with sherry wine, from a teaspoonful to a tablespoonful, in a little water; or, if the prostration is extreme, one-quarter to one teaspoonful of French brandy, in four times as much milk, at the same intervals.

If, in horses, cattle, or sheep, the increased amount of urine passed shows an endeavor to set things right by working the kidneys; sweet spirits of niter with or without a small dose of wine of colchicum mixed with it and given three times a day for two or three days, will often give good help. (See dose table.) Sweet spirits of niter may also be given to dogs with good results, but the colchicum had better not be used, unless under the direction of a veterinarian.

When much sweating or diarrhoea occurs, it shows that an effort is being made to get rid of certain waste materials in a natural way, therefore care must be taken not to check them suddenly or unnecessarily.

When inflammations are treated upon this general plan the character of the measures will seem somewhat tame, but there is the satisfaction of knowing that while, without doubt, we can guide to a successful termination certain disorders, that, without intelligent aid, would have terminated fatally, and, in doing so, have been able

to add considerably to the comfort of the ailing animal, any rude attempt at cure will merely increase the danger. The risk of all inflammations being in proportion to the weakness of the animal, it is surely not wise to undertake measures that will produce debility.

Diseases of the Breathing Apparatus— Catarrhal Fever.

This consists of an acute or sub-acute inflammation of the membrane lining the nostrils, and upper air passages; it may become complicated with sore throat or bronchitis.

Causes. — It does not always arise from “taking cold,” as is often supposed, but also from a too sudden change of air, from exposure to wet, bad ventilation, damp buildings, as in new brick structures before the walls have become dry; and is commonly seen among horses that are brought from country to city stables, or in animals that may have inhaled considerable dust.

General Symptoms. — There is more or less fever, thirst, loss of appetite, frequent quick pulse, slight elevation of temperature, with, perhaps, a little increase in breathing; and a discharge from the nose. *In the horse*, in addition to these, there will be sneezing, blowing from the nose, redness and, *at first*, dryness of the membrane lining the nostrils, which, however, is soon followed by a discharge from them of a thin colorless and more or less irritating secretion, which soon becomes thicker, cloudy, pus-like and profuse. At the end of some two days the feverish symptoms begin to subside and, if the discharge is comparatively free from pus, return to health takes place within ten to fourteen days. Or else, by extension downward of the inflammation of the nasal membrane, there may be sore throat, bronchitis, or even lobular pneumonia.

In cattle catarrh is of comparatively rare occurrence, and its symptoms in them will be confined to those of a general nature.

In sheep the fever is more apt to be of an acute type, with comparatively rapid breathing, sneezing, coughing and shaking of the head. The nose is extended, and there is a greater tendency toward sore throat, bronchitis, or pneumonia. The discharge from the nostrils is more yellow and heavier; and the disorder is apt to run a longer course, perhaps continuing for several weeks.

In dogs catarrh is far from infrequent; and may easily be mistaken for distemper, at first. In addition to the general symptoms there is a nasal discharge, which is either colorless or thick and grayish, considerable sneezing, with wheezing and bubbling as he breathes.

Treatment. — In horses, cattle, and dogs follow that given for simple inflammation, keeping the nose, and eyes if necessary, as well cleaned as possible, with the lysol solution. (See prescriptions.)

In sheep, besides the usual treatment, it will generally be better to give a stimulant or tonic as: one teaspoonful of sweet spirits of niter, in a tablespoonful of cold water, three times daily. Or the following tonic: Tincture of iron, two drams, tincture of ginger-root and tincture of gentian root, one-half ounce each, water, one pint; mix and give two tablespoonfuls three times daily; or, if more convenient, all three doses may be given together, at night.

In chronic nasal discharges the services of a veterinarian should be obtained, as the condition may be due to so many different causes; as diseased teeth, bones of the head, structures in the throat, etc.; the treatment of which must be surgical.

Sore Throat.

Causes. — Inflammation of the structures composing and surrounding the upper extremity of the windpipe (larynx), occurs quite commonly in all the animals as a result of precisely the same conditions, already described as being those of catarrhal fever.

General Symptoms. — There will be loss of appetite, great thirst, attended, if the inflammation is extended to the top of the gullet (pharynx), as often happens, with difficulty in swallowing either liquids or solids. The head is held more or less stiffly, with the nose extended, and there is tenderness upon pressure over the larynx; first a hard, dry, spasmodic cough; reddened membranes; and more or less fever as shown by a frequent pulse, quickened breathing and increased temperature. As the disease goes on the animal does not cough so often, the cough is more moist, and there is a considerable quantity of ropy, sticky discharge, mixed with saliva, in the back part of the mouth, with or without a slight discharge from the nostrils. Or, more rarely, following these symptoms, such a rapid and extensive effusion takes place into the substance of and about the larynx as to seriously and rapidly threaten the life of the animal from suffocation. The breathing becomes suddenly much more difficult, the inspirations particularly prolonged and attended with a peculiar harsh or whistling sound, followed by a short expiration. The nose is very much extended, the eyeballs somewhat bulged outward, with tears running freely from the eyes. The expression of the face becomes anxious, the nostrils, dilated as much as possible, show a red membrane, and there is a frequent hoarse, rasping cough. The extremities are cold, the bodies of horses are covered by patchy sweatings. The pulse is much increased in number and feels wiry to the touch, the temperature rises to from 103 to 106. If this condition continues for more than a short time stupor is shown, followed if relief is not given, shortly, by death from suffocation.

The disorder is more frequently seen in horses and dogs than in cattle and sheep, still it affects them all, at times, and the symptoms do not vary materially between one and the other.

In, by far, the great number of cases, after a few days of considerable annoyance, chiefly from coughing and difficulty in breathing, the animal will gradually regain his former condition.

Treatment. — All directions for the general care of fevered animals having been carried out, the desirability of giving medicines excepting those that will be taken with the food or water, becomes a question of moment. If there is very much soreness or, especially, if the power of swallowing is interfered with, there is no doubt that trying to force anything in the way of a drench or pill down the throat is liable to produce a condition bordering upon strangulation, and so the attempt will be better not made. In instances when the irritation of the throat is not extreme medicines may be given, with advantage, in the form of an "electuary," that is made into the consistency of soft gum, and then pressed into the outer side of one of the back teeth, from whence it will gradually dissolve and be swallowed, as: solid extract of belladonna and powdered camphor of each one ounce; rub these well together and add a sufficient quantity of honey to make the desired consistency. The mass is then to be divided into eight equal parts, of which one may be used each morning and night, in the way above described. Another very useful prescription is to place one teaspoonful of the fluid extract of belladonna upon the tongue, pretty well back in the mouth, three times a day: this small amount will not be large enough to be "spit out" by the animal, or to cause coughing, and the soothing effect of the belladonna will, at times, be very beneficial. This may be given to horses or cattle in the above doses.

In sheep the extreme tenderness of the throat is not so likely to occur, and for them the following prescription has been recommended: chlorate of potash, one-half ounce; tincture of iron, six drams; water eight ounces; all to be mixed and well shaken, until the potash is dissolved. Dose of the mixture for an adult sheep one tablespoonful; for lambs, one-half, and for yearlings one teaspoonful, three times a day.

Outside applications are always safe and generally very helpful. Inhalations of steam are to be freely used, always being careful not to confine the nose too closely, and not to commence the application so suddenly as to increase the cough. If pressure can be made over the larynx without increasing the distress in breathing, hot applications, as poultices of oil-meal, or perhaps better, under the circumstances, common cotton waste, wrung out of hot water, should be applied over the throat and held in place either by a long bandage or a hood made for the purpose, as has been already described; these hot applications should be changed often enough to keep the parts soothed and warm. When the inflammation has somewhat subsided, or sooner, if the poultices cannot be kept in place; or at once, if there is any loss of power to swallow, a smart but not excessive blister should be rubbed onto the skin overlying the larynx; and ex-

tending upward, on each side, gradually coming to a point at within two or three inches of the base of the ears. The poultices may be used on all of the animals, excepting sheep, and the blister on both horses and cattle, when required. The blister should be made of one ounce of powdered Spanish fly, to four ounces of lard; well mixed together and allowed to harden a little after mixing, when it may be rubbed on, as directed. Rub lightly when a slight blistering action is required, and harder, with more of the ointment, if a considerable action seems necessary. In all animals, in sheep particularly, a good stimulating liniment may be used instead of the blister, as soap liniment, five ounces; water of ammonia, turpentine and oil of origanum, two drams of each; all to be mixed and well shaken up together. A little of the liniment may be rubbed onto the parts once daily, until an irritation and thickening of the skin begins to be shown; when its further use should be discontinued. When suffocation is threatened, the windpipe must be opened below the throat, and a breathing-tube inserted. This operation will require the services of a surgeon, but if it can be done quickly enough the life will be saved.

Roaring.

This term is used to describe a peculiar noise made by some horses during action.

Causes. — It may be *caused* by a previous attack of sore throat, or a great many other things the descriptions of which are not given, as their existence can only be determined by a veterinarian.

Treatment. — If recovery cannot be obtained by the application of a sharp fly blister, applied as directed for sore throat, with three or four weeks of absolute rest, following it, there only remains a remote possibility that it may be cured by surgical operation.

Bronchitis.

This affects all of the animals, and consists in an inflammation of the lining membrane of the breathing tubes, and sometimes of the air sacks of the lungs as well; and, taken all in all, is one of the most common diseases of the lungs. It may be *acute* or *chronic*; one or both lungs may be affected throughout, or it may be confined to a portion of one or both.

Causes are divided into predisposing and exciting. The *predisposing* causes are debility from any pre-existing disease, but particularly influenza, catarrhal fever, etc. The *exciting* causes are exposure to cold and damp, exhaustion as from overwork or insufficient food, inhalations of smoke or other noxious vapors, the accidental introduction of foreign bodies, as medicines and other fluids or solids,

into the windpipe; and as a result of breathing impure air coming from unsanitary surroundings.

Acute Bronchitis is a dangerous disorder, partly owing to the fact that, by it, a sufficient amount of air to properly clear the blood is not admitted into the lungs; and, in some measure, to the fact that the inflammation is not unapt to be spread to the very small tubes, and from them to the lining of the air sacks themselves, so producing a low and dangerous form of pneumonia.

Symptoms. — An attack often commences with the general symptoms of a slight inflammation. Following or accompanying these, catarrhal indications will be presented in addition to which there is a frequent harsh, loud cough which becomes softer and more moist as the disorder advances, and fluid commences to be discharged into the tubes; the animal becomes more depressed or even, perhaps, semi-conscious, if too much air has been shut off from the lungs; the pulse is increased in number to, in horses and cattle, seventy or eighty beats in the minute; in sheep and dogs, one hundred to one hundred and twenty; the respirations are much hurried, being sometimes equal to, and rarely exceeding, the number of the pulse beats; as a rule, the quicker the breathing the more trouble there is in the smaller tubes and the greater the danger. The temperature will be raised to from one hundred and two to one hundred and four, rarely to one hundred and six; the visible membranes are either deep red or, in cases where the lungs are getting too little air, they will show a bluish-red (livid) color. The bowels are rather constipated and their discharges are commonly covered with slime (mucus). The urine is high-colored and scanty.

The two points of danger are *first*, where the tubes going to considerable portions of the lung become so blocked with the discharges that no air can pass them, the lung beyond becomes useless; this condition is shown by much faster breathing without any corresponding rise in the temperature. The *second* element of peril occurs if the very small tubes get so intensely inflamed as to become filled with pus; this is accompanied by greatly increased frequency in breathing, increased, frequent, and distressing cough, with great rapidity of the pulse. These two conditions are more apt to be shown by young animals: horses under four years, cattle under three, sheep and dogs under one; that is, in lambs and puppies.

In favorable cases recovery begins between the fourth and eighth days, and shortly either entirely subsides, or, in old animals, passes into the chronic form.

In unfavorable cases the strength becomes greatly reduced, signs of congestion of the lungs and partial suffocation are shown, and death soon follows.

Treatment should be that recommended for general fever, with the addition of a dry woolen covering to the chest, which in horses

and cattle may be easily made by folding an ordinary square horse blanket so that it will be three thick, placing the middle of it under the chest, bringing the ends up over the middle of the back, fastening them there firmly with large safety pins, or otherwise, and throwing one more blanket over the animal in the usual way. Sheep do not need the covering over the chest, unless they have been recently clipped. Dogs should have the jacket already described. The legs of horses should also be covered with ordinary flannel bandages, which should be removed once a day, the legs rubbed a little, and the bandages immediately replaced.

If the cough is hard or the breathing very rapid, inhalations of steam, as advised for sore throat, had best be used. If the constipation is considerable, the bowels had better be moved by warm soapy water injections; if these are not sufficient, a moderate dose of raw linseed oil, as one pint for horses and cattle, six ounces for sheep, and one half ounce each of castor and sweet oil for dogs, may be given; although it is not usually desirable to give a cathartic or even an aperient in these cases, it seems necessary to do so in a very few instances. The cases in which the breathing becomes especially quickened had best have the camphorated oil of the drug shops, or the stimulating liniment already recommended, well rubbed onto the skin over the ribs. In instances wherein depression is great and the pulse weak, the mixture of sweet spirits of niter and quinine had best be given, each two hours, until a fair amount of strength, as shown by the improved character of the pulse, has been regained. In dogs a teaspoonful or two of French brandy in sufficient water may take the place of the niter, as directed for the larger animals.

When cough remains troublesome after the fever is over, fluid extract of belladonna in doses of a teaspoonful may be given on the tongue, three times daily, for horses and cattle. For dogs the following mixture will be better: Syrup of squills and syrup of cherries, of each two ounces; compound spirits of ether, one dram; all to be mixed and well shaken together. Of this, one teaspoonful may be given three times daily, or, if the cough is very troublesome, a fourth teaspoonful can be given at night. If, after recovery from the fever, there is much debility, a rather common occurrence, such tonics as iron, quinine, nux-vomica, and gentian should be given. (See prescriptions.)

Chronic Bronchitis.

Causes. — This disorder is met with either as following the acute disorder or as an independent condition, more especially in older animals.

Symptoms. — The disorder is characterized by a persistent, hard, loud cough, but without any evidences of fever. The breathing is always somewhat quickened, and, if the animal is put to work, or

even made to take light exercise, as by driving cattle and sheep for any considerable distances, or taking out a dog for exercise, or subjecting any of the animals to causes of excitement, it becomes more or less considerably disturbed and the cough is increased in frequency. In many long-continued instances there is a gradual loss of flesh, diminished appetite, and general debility. When chronic bronchitis appears as an independent affection, it is gradual in its onset, and of a very persistent nature when established.

Treatment. — The diet should be liberal and nutritious, but the feeding should so be arranged that the stomach is not at any time stuffed full, as with great quantities of hay or grass. Rest is not always necessary, although severe exertion should never be allowed, as it not uncommonly happens that an attack of the acute disorder follows a very slight cause. The best results of medical treatment are obtained through the rather prolonged administration of such tonics as nux-vomica, iron, quinine, and arsenic; and for dogs cod liver oil and the Bland's pills (See dose table.)

Heaves or Broken Wind.

This is nothing more or less than a symptom occurring in the course of various diseased conditions, as chronic bronchitis, asthma, and a broken-down condition of the walls of the air cells of the lungs, called "emphysema." The first of these has been described; the next is:

Asthma.

This is essentially a nervous disorder. The peculiarities in breathing by which it is accompanied are given rise to by a spasmodic contraction of the little circular muscular fibers of the bronchial tubes, which is brought about by an over-stimulation of some part of the nervous system; generally, but not always, that which is in connection with the stomach. It affects horses and dogs, more particularly.

Causes. — Many authorities say that an hereditary taint is a factor in the production of asthma; but it must be remembered that, while in a very few cases this may be a known predisposing cause, as it undoubtedly is among humans, that in by far the greater number of animals no influences of this kind can be discovered, because the personal peculiarities of the ancestry of animals is not generally known to their owners. All that can safely be said in this direction is, that the form of chest which is present in by far the greater number of the cases among animals, is one that is unusually round and shallow for the class of animal to which the patient belongs.

A celebrated author while speaking of asthma in horses has written, "I have no hesitation in asserting that the disorder is generally

due to improper food, more particularly to bad, musty, or coarse hay, . . . to a superabundant allowance of hay of any kind, with a deficient supply of grain."

To this may be added the habit of working horses too soon after feeding or watering them.

Again, there are horses with slow digestions, having an acid, pasty-smelling breath, more or less hidebound, with an ill-conditioned skin, and other evidences of indigestion, that certainly have a strong predisposition to asthma, upon a very slight application of the causes spoken of. The writer has known horses having the described form of chest to contract the disorder while at poor pasture, without grain, in a dry summer, which have become perfectly well again after a time of careful feeding and proper attention to the evidently bad condition of the digestive organs.

Symptoms. — Asthma is characterized by a sudden attack of spasmodic breathing, which, as in all cases of heaves, consists of a fairly well-performed inspiratory effort followed by a double expiratory movement, in which the belly is first pressed upward, a stop is made, and the effort finished by a slow and more or less difficult contraction of the ribs. At an early period in an attack of asthma, the expiration is at first of a "jerky" character, rather than a full exhibition of the "double breathing" above described; if, however, the attack continues, the effort made in breathing partakes of the same general character as that of the other two conditions named. In asthma the wheezing sound heard at the nostrils is more distinct than in the others, there is more exhaustion after exercise, with less cough, which is less suppressed and weak as in emphysema, and not so moist as that of chronic bronchitis. Oftentimes there is a sudden and unaccountable onset of the difficult breathing; again, the truly spasmodic nature will be shown by its coming on when the mind of the horse only, is excited by something unusual going on in the neighborhood of his stall, his body in the meantime being at rest. Unaccountable appearances, disappearances, and reappearances of the peculiar breathing are also marked features. If the spasm be severe the pulse will be small and frequent, and, if long continued, the surface of the body, which may have been cool at first, becomes sweaty in patches, owing to the exertion of breathing. An attack may last for a few days, or extend over several weeks or months, and then disappear or pass imperceptibly into emphysema, for which there is no cure.

Treatment. — The diet should receive immediate attention, and must be such as is of a nourishing, and so far as possible, laxative nature, without bulk; or the desired laxative condition may be brought about, and perhaps, better be by having doses of carron-oil mixed with the grain feed twice daily. Carron-oil is made by mixing together equal quantities of raw linseed oil and lime water in a bottle,

and shaking the mixture until it changes color and becomes so far emulsified that it will not separate; the dose is from four to eight ounces, which should be increased or diminished as occasion requires, the object being to always keep the bowels in a fairly active condition. The drugs from which a selection should be made are: bromide of potash, iodide of potash, belladonna, and lobelia (see dose table), sometimes one and sometimes another will be found to give the best results in the various cases.

In dogs the treatment will be about the same, excepting that sweet oil, or, better, cascara should be used to bring about the desired condition of the bowels.

Emphysema.

This may affect one lung or both, or only a part of each.

Causes.—It consists in the giving way of the walls between a lesser or greater number of the air sacks, as a result of which, more or less of the lung becomes filled with “bladders of air” of various sizes, to such an extent as to prevent the normal amount of the inbreathed air from being expelled, as it should be, before the next fresh air is to be taken into the lungs. This unexpelled air, having already given up its oxygen to the blood, is of no further use and must in some way be gotten rid of, so far as possible, in order that sufficient new air to freshen the blood may have room to enter. Thus it is that the animal makes such a great effort to expel all the old air and in doing so uses all the possible muscles that he can to help; this full use of the “extraordinary muscles of expiration,” as they are called, requires the double expiratory effort already described.

Treatment.—The disorder is incurable because of the presence of the organic changes in the lungs; the ruptured walls of the air sacks cannot be mended. As work or exercise demands a greater amount of fresh air for the lungs, with increased exertion to get rid of that which has become useless, an animal having the trouble should not be subjected to exercise, and horses or oxen having it to any great extent should not be worked, and cannot be to any profitable extent.

Congestion of the Lungs.

This term is used to describe a condition in which the lungs become suddenly and fully stuffed with blood. It is most commonly seen in horses, but may occur in the other animals.

Causes.—It is generally met with in badly conditioned, soft, and fleshy animals that have been put to unaccustomed, hard, continuous work, or to great sudden exertion. It may also occur from exhaustion, bad air and drainage in stables.

Symptoms are in most instances of a very severe type, and espe-

cially characterized by great difficulty in breathing. The horse or ox stands with his limbs outstretched, and gasps for breath; all the available muscles of respiration are called into play; the nostrils open and close in quick succession; the flanks heave with a corresponding rapidity; the body surface is covered by cold sweats; the extremities are icy cold; the visible membranes are deep red, showing plainly the venous condition of the blood, as well as the slowness with which it flows through the vessels. The pulse at the jaw is very frequent, and may reach, in the horse and ox, one hundred to one hundred and forty beats a minute; it is feeble, indistinct, and becomes almost, if not entirely imperceptible, in severe cases, although the artery is large and seems full; and there is a tremor of the whole body. The action of the heart, which is irregular and tumultuous from the first, becomes still more embarrassed; the lungs still more engorged; and the breathing more disturbed, until at length death results because there is not sufficient arterial blood in circulation.

In more favorable instances, however, the blood begins to slowly leave the lungs, and the heart to regain power until the circulation of blood through the lungs is again fully established, and the animal soon regains his normal condition.

In some cases a little very dark colored blood drops or runs in a small, slow stream from one or both nostrils; this comes from the rupture of some small vessel in the overburdened lung; its presence, of itself, need cause no special alarm. Good hopes of recovery may be entertained so long as the pulse can be fairly well felt and counted. As relapse is apt to take place within a short time, the animal should on no account be exercised or even taken out of his stall for three or four days after he seems well. It not infrequently happens that what seems to be a slight attack of this disorder results in a case of pneumonia.

Treatment. — In all cases and at the very first, it *must* be so arranged that the animal can have a good supply of good fresh air, without draft. If he must be kept in an ordinary stall, he should be turned around so that his head will be kept in the open passage; and he should be tied in that position. If he is in a box stall he should be tied so that it will be impossible for him to get his head into a corner or against the wall and so have a chance of breathing less pure air. The body surface should be well rubbed with straw or coarse cloths and kept warm by blankets. The legs are to be rubbed with stimulating liniments and closely bandaged with woolen flannel; and if they do not grow warmer, after a little time the rubbing and bandaging should be repeated.

The writer once had the pleasure of seeing a very valuable trotting mare recover from a desperate attack of this kind, in which the warming-up treatment consisted in placing all four feet, at one time, into four strong stable buckets which were three-quarters full of hot

water with a good quantity of ground mustard in it; under the middle of the body, between the fore and hind legs, was placed a large soaking tub half full of almost boiling water. She was then covered with three good sized "sweating" blankets, which were large enough to reach to the floor, and over all of this was thrown a good sized water-proof covering. The water in both the pails and tub was changed often enough to keep up the desired heat. Of course for soaking the feet and legs the water must not be hotter than a man can bear to hold his hands in, as long as he likes, without pain; for if it is warmer than this, the legs will be scalded and the hair permanently lost.

Internally diffusible stimulants should be used; as whisky or brandy in moderate doses, which should be repeated every one or two hours for as long as may be necessary, the condition of the pulse and distress in breathing, being the guides. In place of the alcohol, and in bad cases, the stimulant ball had better be used, if any one is about who is able to give it properly; it *must not* be allowed to break in the mouth. The ball consists of two drams each of powdered carbonate of ammonia and gentian root, with five grains of red pepper; all to be mixed and made into a ball by the addition of enough molasses to give it the consistency of an ordinary pill; this mass can then be tightly rolled in thin tissue paper and given as directed. It should be repeated every one, two, or three hours, as necessary; in bad cases the second ball should be given in one hour after the first one has been taken. If, after a reasonable trial of this treatment, the circulation does not start up, bleeding may be resorted to, and from three to four quarts of blood may be taken from the jugular vein. The bleeding is not to be repeated; nor is it advisable to apply any stimulating liniment or other irritant to the walls of the chest, as they cannot possibly do any good, but on the contrary may do harm by so irritating the animal as to increase the number of respirations and the distress in breathing.

During the convalescence, and to avoid a second attack or a subsequent pneumonia, the animal should be placed in a quiet place where he can have good air, comfortably clothed, and receive a nutritious diet. Water to drink may be allowed as fully as desired from the first onset of the trouble; indeed the more he will drink the better it will be for him.

Lung Fever or Pneumonia.

It should be understood in the first place that the lungs of animals naturally exist in several large complete divisions of the lung on each side, and that these divisions are called *lobes*. And further, that each of these *lobes* is made up by the collection together of a varying number of *lobules*, which are, however, not complete divisions of the lobe but exist under the general covering of the lobe to which they belong.

Several varieties of this inflammation are described but, for present purposes, only two of them need be mentioned.

First: Ordinary lung fever, called also *acute* or *lobar pneumonia*, and:

Second: *Catarrhal, bronchial, or lobular pneumonia.*

All of the animals are subject to this disorder.

Acute pneumonia is now thought to be a general disease, of which a temporary consolidation of more or less of the substance of one or more of the lobes is the prominent local indication.

Causes. — The usual *exciting* causes are sudden chills, exposure to cold and wet, especially after severe exertion or fatigue, and confinement in draughty stables. The disorder is especially prevalent during spring and autumn, because of the sudden changes in temperature which commonly take place during those seasons. Other causes are: inhalation of irritating gases, as fumes of ammonia, etc., the smoke from burning straw, hay, wood or other materials; as well as the presence of foreign bodies in the lungs, as medicines turned down the windpipe, and also from wounds of the chest walls, which penetrate into the cavity containing the lungs; or from a wound inflicted by the sharp end of a broken rib.

More often one lung only is affected although both may become so, when the case is said to be one of double pneumonia.

Symptoms. — In the horse, pneumonia of this type always begins with an attack of severe shivering soon followed by a hot stage, the internal temperature reaching to from one hundred and three to one hundred and six, while the body surface and the extremities are cool or cold to the touch. The pulse is frequent but very variably so, it may be no more than sixty beats in the minute, while at other times it may be as much as one hundred beats in the same interval of time. In character it is at first strong and hard, afterwards becoming soft and weak. Breathing is, at first, hastened no more than in proper proportion to the number of the pulse; afterward, as the lungs, or a portion of them, begin to solidify, the movements are more frequent, reaching, perhaps, to as many as sixty in the minute; the nostrils are dilated and the air coming from them feels warmer than usual; there may or may not be a slight cough; and a little rusty-colored discharge from the nose; the membranes are red with, possibly, a slightly yellowish tinge. The animal usually stands throughout the attack; he will, however, occasionally lie down for a short time, in which case he will lie upon the diseased side. The appetite is seldom entirely lost. The symptoms afforded by listening with the ear pressed closely to the side, or by thumping lightly with the fingers, over the same parts, so valuable to one who thoroughly understands the normal and abnormal sounds and what the variations that he finds mean, are far too intricate for description here.

The disease reaches its height toward the fifth or sixth day.

In Cattle the symptoms will not vary much from those of the horse, excepting that this animal persists in lying down, with the breast bone pressed against the floor.

In Sheep the differences are that the shivering fit is of much shorter duration; the animal stands with the elbow turned outward from the sides, and there is a persistent cough, more apparent distress in breathing, and there is a decided discharge from the nostrils. The appetite is more frequently entirely lost.

In the Dog the differences are: a greater distress for breath; the animal sits up on his haunches with the nose extended and the mouth open. If he lies down at all he will try to arrange matters so that his head will be lifted up and supported in the position described. The heart is apt to show early weakness and therefore should always be carefully and frequently examined. The temperature will be from one hundred and three to one hundred and six.

Treatment. — Is a matter concerning which there is a great variety of opinion and practise, but all agree that there is the greatest need of a good supply of fresh air, without draught. For this reason the animal should be placed, as nearly as possible, under the same conditions, in this respect, as those recommended in congestion of the lungs. The maintenance of an even temperature is *very* desirable, at about sixty-five degrees if possible; at any rate the animal *must* not be placed where the temperature will fall below fifty-five degrees at night. The chest should be covered with a folded blanket, as already described, both in horses and cattle; and the flannel jacket should be put upon dogs, and all three of these animals may have the camphorated oil well rubbed over the chest walls under this covering, once daily during the attack; further than this, the body should be kept comfortably covered and the legs bandaged with woolen flannel. As much cool water should be allowed as is desired, but during the earlier stages when thirst is especially great, the water should be given in a few swallows at a time, each fifteen or twenty minutes; after the thirst is somewhat lessened a moderate supply of water may be left within reach of the animal. The appetite should be carefully nursed and a nutritious diet given as has been described. Whatever the animal will eat, including milk and raw eggs, may be given him freely at any stage of the malady. As to medical treatment there will be, at first, nothing better than that recommended for general fever, with, in cases where the pulse is especially full and frequent at the beginning of the attack, the tincture of aconite root, in doses of from ten to twenty-five drops, mixed with four tablespoonfuls of cold water, should be given each two hours for from six to eight times, as required, to horses and cattle. Remember that it is being given to lessen the tension and frequency of the pulse and that as soon as this object has been gained the dose is to be reduced or stopped entirely, as seems indicated. This nurs-

ing, with the administration of the nitrate of potash and the aconite, if it is needed, will generally be all that is required by a straight case of acute pneumonia. If, however, after the fever has subsided, much debility is shown, stimulants should be given: sweet spirits of niter, whiskey or brandy, in doses of from two to six ounces, with a proper quantity of cold water, each two, three, or four hours, as seems necessary, judging the strength as indicated by the pulse. If, after two or three doses of the stimulant have been given, its effect seems to be good, it may be continued as required; if, on the other hand, the breathing becomes, even in the slightest degree, more distressed, the stimulants must be *immediately* discontinued and the case allowed to go on, under the general treatment, with good nursing. The sides should never be blistered, even with mustard, nor should bleeding be allowed. After full convalescence is established, a good tonic may or may not be required; if one is used, it should contain iron as part of its composition. (See prescriptions.) Cattle should have about the same treatment with, if necessary, a fairly good dose of epsom salts, one pound; ground ginger, tablespoonful; molasses, teacupful; all to be mixed with three pints of warm water, and given at one dose when the salts have dissolved and the mixture cool enough.

In Sheep the tendency is strongly to a low type of the disorder. Therefore, if they do not improve under the ordinary rules of treatment, they should at once be put upon that recommended for catarrhal pneumonia.

In Dogs there is frequently a tendency toward debility and failure of the heart's action. It will not, therefore, be best to give them aconite except at the very commencement of a case wherein the temperature is high and the heart is working very hard. It should even then be used with caution and stopped as soon as its effects commence to be shown by a slightly lowered temperature and less forceful heart; the dose should always be a moderate one and given in not less than a tablespoonful of cold water. As already indicated, the heart should be carefully watched throughout the attack, and if at any time its action seems to tend toward weakness or irregularity of force in the beats, it must be stimulated by brandy or the administration of digitalis. (See prescription).

Catarrhal, Bronchial, or Lobular Pneumonia.

Is always of a low type, generally secondary to some other debilitating disorder, and always having a strong tendency to cause degeneration of the parts of the lungs affected, which are, as has been said, larger or smaller scattered groups of the lobules.

Causes. — Lobular pneumonia is always secondary to obstruction in the bronchial tubes, especially of the very small ones. It may be excited either by the gradual extension of inflammatory processes

from the tubes to the air cells, or by the entrance of inflammatory products from the tubes into the cells. Any bronchitis may predispose to it, but it generally follows in such animals as are debilitated from any cause, and is always the form shown when pneumonia follows any of the infective diseases. It may also follow wounds which penetrate the chest walls.

Symptoms. — These are, at first, always more or less obscured by those of the malady which it accompanies, or by which it has been preceded. It rarely runs a regular course, that is, terminating after a *definite period* either in death or recovery, for it may be protracted for weeks.

After bronchitis or any debilitating fever has existed for a variable period and pneumonia sets in, the breathing becomes more or less hastened and labored; the temperature rises gradually to from one hundred and four to one hundred and five; there is very rarely any shivering fit. After twenty-four hours the pulse becomes small, compressible, and feeble. The trouble is somewhat indicated by the fact that, when the symptoms already described are present, the fever usually shows well marked ups and downs, at irregular intervals. The intensity of the symptoms depend upon the amount of lung involved. When recovery occurs, the change toward health is very slow; the pulse rate, temperature, and difficulty in breathing diminish almost imperceptibly and the convalescence is long. When the disease is to end fatally, the temperature rises, the visible membranes are of a bluish deep red color, and the breathing movements hurried and irregular.

Treatment. — The general rule laid down for the nursing and care of the acute disorder will apply here; but it is to be remembered that as this is a secondary malady, the very fact of its presence indicates that the animal is in an enfeebled condition and, therefore, that the administration of *all* depressing agents, such as nitrate of potash, aconite, etc., must be avoided. The chest walls and the body should be carefully covered, as directed, and the legs bandaged. Inhalations of steam made from water, into which a moderate amount of common vinegar has been put, will be very useful if the case is one following bronchitis. The sides should not have any irritant applied to them, not even a stimulating liniment. Stimulants, as sweet spirits of niter, Irish whiskey or brandy, with quinine, should be given from the first, three or four times daily, and persisted in. Quinine given in large doses through the rise of the fever and reduced somewhat during the return to health, is a most serviceable drug in these cases. The quantity and number of doses to be given each day must be governed by the individual case; it may be added to until the pulse is increased in force and the respiration a little less frequent. When this point has been reached, the dose may be held

where it is, or reduced little by little, as the pulse, etc., show that it is time to do so.

This treatment will be best for all animals, excepting that the full-fleeced sheep will need no extra covering over the sides. (See dose table.)

Pleurisy.

Inflammation of the membrane completely lining the inner walls of the cavity of the chest and thence extended to form the outer covering of each lobe of both lungs. It may be primary or secondary. It affects all of the animals.

Causes. — *First*, exposure to cold, damp, and sudden changes in the temperature of the air, especially in animals that have been previously run down by overwork or exposed to bad sanitary conditions.

Second, the extension to the pleura, of any inflammatory action which may have been set up in a contacting part. In this way the malady is frequently associated with lung fever, especially in instances where the pneumonia has resulted from any of the infective disorders.

Third, any wound that has penetrated the chest wall; into the tissue itself, or made by a broken rib.

Fourth, it may be set up in connection with such constitutional disorders as rheumatism or pyæmia.

Symptoms. — In the horse. Acute pleurisy begins either with a slight chill or a hard shivering fit and loss of appetite. The animal is restless, and shows signs of pain that may be mistaken for those of colic; breathing is hurried, difficult, sometimes a little gasping; performed by the muscles of the belly, as much as possible, carefully, and is frequently accompanied by a grunt when the animal is moved, especially if he is turned around, as in a box stall; pressure of the muscles between the ribs, by the ends of the fingers, causes much pain and grunting.

The pulse is increased in number, to from sixty to one hundred beats, is hard and often has a wiriness that is caused by nervous irritation, which is directly due to the pain. The temperature rises to from one hundred and three to one hundred and four, the mouth feels hot and dry, but the air coming from the nostrils does not feel so hot as in lung fever. A short and evidently painful cough is often present. A return to health may begin to be made within two or three days, or even a little sooner; or the inflammation may be followed by a considerable outpour of fluid into the cavity of the chest (hydrothorax), which will be shortly described.

In Cattle the differences are that the elbows will be turned out from the ribs, the flanks are hollow, the cud is lost; not infrequently signs of rheumatism are shown, when the heat and swelling caused by it will change from one joint to another at frequent intervals.



(EWE) SHEEP
SHOWING INTERNAL ORGANS

EXPLANATION OF (colored) ILLUSTRATION OF (EWE)
SHEEP.

1. Lower jaw-bone.
2. Tongue.
3. Upper jaw-bone.
4. Cavity of the nostrils.
5. Bones of the nose.
6. Bones of the cranium.
7. Brain (cerebrum and cerebellum).
8. Spinal cord, upper portion.
9. Back of mouth and back opening of the nostrils (pharynx).
10. Windpipe and bronchial tube.
- 11-11. Gullet (œsophagus).
12. Jugular vein.
13. Carotid artery.
14. Muscles of the neck.
15. Large ligament of the neck, helping to hold up head.
16. The first rib.
- 17-17. Parts of the backbone.
- 18-18. Muscles of the back.
- 19-19. Vena azygos.
20. Heart.
21. Anterior vena cava.
22. Posterior vena cava.
23. Posterior aorta.
- 24-24. Left lung.
25. Membrane covering heart (pericardium).
26. Midriff; diaphragm. Divides cavity of chest from that of belly.
27. Kidney.
28. Ureter; tube leading from kidney to bladder.
29. Urinary bladder.
30. Pelvic bones; edgebones.
31. Vagina.
32. Rectum.
33. Bowels.
- 34-34-34. Walls of uterus.
35. Young lamb in uterus.
36. Udder.
37. Teat.
38. Muscles of back.
39. Muscles of inner forearm.
40. Knee, with skin removed.
41. Back tendons.
42. Shin bone.
43. Inner muscles of leg.
44. Inner muscles of shank.
45. Hock.
46. Pastern.
47. Hoofs.

In Sheep there are no marked differences in symptoms, and if the animal is to get well the return to health begins in from two to three days. If, however, convalescence does not begin at about this time, the disorder is very likely to terminate fatally, after a period of from a week to ten days, from dropsy of the chest.

In Dogs the general symptoms will cover all that is shown. This animal is *not* particularly subject to this disorder.

Treatment. — The animal should be placed and covered as directed in pneumonia, and receive, during the severe symptoms of fever, aconite and nitrate of potash, in the same way. In addition to which small doses of tincture of opium or morphine, should be given if the pain is considerable and long continued; it is not best to give any preparation of opium, unless it is absolutely required, because of the tendency of that drug to create constipation; but where the pain is severe it must be stopped, and if that cannot be done by the use of blankets wrung dry out of very hot water and applied to the chest, as already directed for the dry covering, the opium must be used (see dose table); and with it a small dose of raw linseed oil may be given to horses, cattle, and sheep, and sweet oil to dogs, as, one quarter of the full doses of the oils with each dose of tincture of opium. Remember that the opium is given to relieve the pain and a sufficient amount of it, within reason, must be used to accomplish the object, but the doses should not be given at anything less than a two-hour interval.

If after the symptoms of severe fever have passed away, the animal seems to make no further progress toward recovery, the breathing and pulse still somewhat difficult and raised; the sides had better have a good rubbing with stimulating liniment and be immediately covered with a *dry* blanket; and begin to receive medium doses of sweet spirits of niter or whiskey, three or four times daily as required; the mixture of the niter, quinine, and belladonna (see prescriptions) will probably give good results.

Dropsy of the Chest. Hydrothorax.

There is always during health a small quantity of fluid secreted into the cavity of the chest, by the pleural membranes, which keeps the surfaces properly moistened and saves friction between the chest walls and the lungs during the breathing motions. Any inflammation of these membranes, as in pleurisy, dries up this natural secretion, more or less, during the *very first* of the attack. Soon, however, the membranes, excited by the inflammation, pour out a much greater quantity of this lubricating fluid than is required; and the surplus quantity, of course, falls into the bottom of the cavity and accumulates there. A considerable amount of this accumulation may take place without doing material harm, and, as the pleurisy is recovered

from, the fluid ceases to be further oversecreted and the quantity which has already been collected is gradually absorbed by natural processes.

In certain instances, however, the secretion is, little by little, or more frequently somewhat suddenly, poured out in such great quantities that the lungs, pressed by it, or floated on top of it, no longer have room in which to expand sufficiently to take in the required amount of air, and dropsy of the chest is shown to be present.

Symptoms. — With the effusion of the fluid the more active febrile symptoms and pains abate, the temperature may fall a little and the pulse be less wiry.

If the fluid now accumulates in very large amount, the pulse becomes much more frequent, is of smaller volume, and may be irregular both in strength and evenness of the beat; the breathing becomes more labored or even very difficult; the flanks heave; there is flapping of the nostrils; the head is protruded; and so great sometimes is the effort to breathe that even the tail moves up and down with each effort. Dropsical swelling appears beneath the skin upon various parts of the body and legs, but, more particularly, just between the forelegs, below the breast, from whence it extends backward, more or less.

Treatment. — The administration of very large doses of iodide of potash for horses and cattle, no less than three drams at a dose, repeated three times a day, and given in drinking water, is highly recommended by some. The writer has had good results by setting up severe purgation by the use of raw linseed oil, one quart, to which has been added three large tablespoonfuls of saleratus; all given at one dose, and repeated, in from one half to three quarters of the first dose, if the object sought for has not been reached within twenty-four hours from the time the first dose was given. Tapping of the chest wall and drawing off the fluid is often resorted to. If this is to be effectual it must be done by a veterinarian and before the difficulty in breathing has become very great.

Soreness of the Muscles between the Ribs — Pleurodynia.

This disorder is spoken of in this place because the general appearances of an animal suffering from it so closely resemble those of pleurisy, as to make it possible to easily mistake one for the other. It affects horses.

Causes. — These are often spoken of as being of a rheumatic nature; it sometimes appears without any apparent cause, at other times it follows when horses that are quite warm from driving have been allowed to stand without being covered.

Symptoms. — Will be those, exactly, of a case of sore pleurisy but accompanied with rather more groaning when the animal is moved or when the muscles between the ribs are pressed by the ends of the fingers. One disease may be separated from the other by the fact that in this one there will be little, if any, rise of temperature, and the character and number of the pulse will be less interfered with.

Treatment. — Rub the sides well, once daily, with stimulating liniment and cover them with a dry, folded blanket, the ends of which have been brought up over the back, as already explained. Give one tablespoonful of saleratus, three times daily, in water. The animal should begin to show improvement within three days, or less, and be well within a week or ten days.

Diseases of the Heart and Blood Vessels.

While this class of disorders are, perhaps, of rare occurrence in animals, as compared with men, they are nevertheless so frequently met with in practise as to merit some mention here; although the methods of detecting them, with any degree of sureness, are so technical that it is impossible to describe them intelligently within the limits of a book of this character.

Disorders of the Organs of Digestion — Diseases of the Tongue.

This organ is exposed to many sources of disease and injury and, as it is abundantly supplied with large blood vessels, it follows that wounds of it are commonly productive of much bleeding; and also, because of the large distribution of nerves, slight injuries of it are especially painful.

Inflammation of the Tongue, Glossitis: Causes. — This disorder is rarely met with in horses, except as the result of mechanical injuries, including the use of irritating medicines, or of certain infective disorders, as described.

In Cattle it is by no means rare and among them is due to the eating of rough, coarse food or that mixed with foreign bodies, as splinters of wood, wire, thorns, etc., or in complication with specific fevers.

In Sheep it may be presented under the same condition as in cattle.

Dogs are very liable to it from taking sharp substances into the mouth, as broken bones, irritating agents of various kinds; self-inflicted bites, received during a fit; or from the stings of insects. The whole or a part only of the organ may be inflamed.

Symptoms. — In addition to the general signs of fever there will be a profuse flow of saliva from the mouth, which is itself very hot. After a little the tongue becomes enlarged, reddened, and in some cases, protruded from the mouth, and hard. If the organ is much swollen, especially the back part of it, in the throat, breathing is interfered with, the animal cannot chew, and swallowing may be difficult or impossible.

Generally in the course of two or three days the symptoms will subside, and after a little time the organ will resume its function. In less favorable cases abscesses may form, or death (mortification) of the whole or a portion of the tongue follow; or the organ may be left somewhat harder and smaller than natural.

At first, before the power of swallowing is interfered with, a good dose of cathartic medicine had best be given; the aloes pill (see prescription) for horses; epsom salts for *cattle* and *sheep*; and castor oil for *dogs*. After this the mouth must be frequently syringed out with borax dissolved in cold water, as much borax as the water will dissolve. Cold water with a teaspoonful of nitrate of potash to the pailful of water should always be kept within reach of the animal, that he may be able to cool his mouth by plunging his nose and face into it. If some of the graver symptoms follow, medical aid had better be sought.

Sores (ulcers) of the Tongue occur in all the animals independently or in complication with other maladies, as certain disorders of the stomach, etc.; also as a result of wounds made by sharp teeth, ropes, bits, and various sharp foreign bodies. They interfere materially with condition because from pain in moving the parts, animals, especially horses, cattle, and sheep, will not eat so much as they should; and oftentimes in horses, the presence of these little sores on either the tongue or cheek will cause the animal to drive unpleasantly on the bit.

Treatment.—If the sores are due to sharpness of either the inside or outside edges of the back teeth, as in horses, the uneven edges should be removed by filing them off with an instrument made for the purpose and easily obtainable. After the cause has been removed, the mouth should be thoroughly syringed out, twice daily, with a saturated solution of borax and water, and every other day the sores should be lightly touched, over their whole surface, with a stick of nitrate of silver. They will heal within a week or ten days.

Parrot Mouth. — In this condition in horses the upper front teeth grow to project to a greater or lesser extent over the under ones, because of an unusual shortness of the lower jaw.

Treatment. — Such animals, if the projection of the upper teeth is considerable, should not be turned out to pasture because they are not able to crop the grass in sufficient quantities to keep them in proper condition. If the lower teeth are so far back, or so long as

to wound the soft parts lying just behind the upper ones, when the animal shuts his mouth, they should be filed down often enough to prevent it; the upper teeth should also be cut back whenever they become too long. This operation is best done by putting a gag into the mouth, pressing the animal backward into a stall, and filing off the projecting teeth with the coarse side of a sharp horse-shoer's rasp. The "gag" should consist of a round piece of wood one and one-half inches in diameter and about six inches long, having a strap, with a buckle, which is long enough to go up and over the head just back of the ears, with which it will be held in place; it should be put into the mouth as a bit is and fastened.

Lampas. — This term is used to describe a swollen condition of the soft parts lying just behind the upper extremities of the front teeth in horses.

Treatment. — Carefully, freely scratch the swollen parts with the point of a sharp knife, being sure not to cut in deeply enough to open an artery which lies there; and then rub common salt well into the cuts made. It used to be thought necessary to burn the swollen part out; such an operation should not be allowed, because it is very painful and entirely unnecessary.

Foreign Bodies in the Mouth should always be sought for when, without known reasons, an animal persists in not eating, drools constantly from the mouth, quids his hay, and loses flesh. The accident occurs among all the animals, and the offending object may be found wedged between the teeth, as in dogs, or lodged in some of the soft structures; or the teeth may be very sharp and cutting the tongue or cheeks.

If an Animal Persists in Drooling from the mouth, and no cause for it can be found, the effects of two moderate doses a day of fluid extract of belladonna should be tried for three or four days. (See dose table.)

Pharyngitis.

This term is applied when there exists an inflammation of the upper end of the gullet at the back of the mouth. The malady has already been spoken of in connection with inflammation of the larynx; but it also occurs as an independent disorder.

Causes. — Besides those already spoken of as being due to specific fevers and disorders of the upper air passages, it may be due to cold, exposure, dampness, direct irritation, or by irritation due to a disordered digestion.

Symptoms. — Swallowing is difficult, is sometimes accompanied by coughing, during which the chewed food is forced back into the mouth and through it outward, while the fluids are thrown out through the nostrils. There is no fever or interference with breathing, unless there is also some inflammation of the larynx.

Treatment. — In many cases the condition remedies itself, if the animal is allowed a few days of rest. If the condition continues without alteration for three days, the parts had better be blistered as recommended for sore throat. If fever is present, the entire treatment should be that of laryngitis.

Paralysis of the Muscles of Swallowing.

There is in horses a disorder of the central nervous system, the most pronounced symptom of which is a total inability to swallow either fluids or solids.

Symptoms. — The discharge of chewed food, mixed with saliva, through the nostrils, and when an attempt is made to drink water that fluid will be discharged in the same way, although the animal will appear to be drinking with great relish. The membranes of the eyelids are pale and a little yellowish; the pulse is slow and rather soft; the temperature is at first normal, after a little time ninety-nine, or perhaps a little lower. The face has an anxious expression; the horse stands rather persistently and quietly, although he does lie down at times; he loses flesh rapidly, and, if allowed to live so long, dies of starvation.

Treatment. — As a precaution, the throats of all animals showing these symptoms should be strongly blistered, as directed for sore throat; although if the paralysis is really present the condition is incurable. Against his expressed desire, but at the urgent request of the owner, the writer at one time kept a case of this sort alive for nine weeks, during all of which time the horse did not swallow a particle of food or water. The animal was put into slings and fed by injections of a great variety of fluid foods and stimulants, which were well taken. Electricity was applied to the paralyzed muscles twice daily, and strychnine was given up to the full limit of safety; notwithstanding all of which the horse was, except for the loss of considerable flesh and strength, in precisely the same condition as when treatment was begun; the owner was satisfied that the case was incurable and the animal was chloroformed.

Choking

This accident, rather frequently observed in horses, less so in dogs and sheep, unless the latter are being fed upon roots, is one of very common occurrence in cattle; and in all is attended with considerable danger to life. In connection with supposed choking in dogs there is one fact that should always be remembered: persons are apt to believe that these animals are choked when they are not; if a dog coughs, or indicates any peculiar symptoms about

the head and neck, he is oftentimes thought to have a bone in his throat; and inasmuch as rubbing the sides of the throat with the paws, gasping, etc., all of them symptoms of choke, are also seen in connection with rabies, care should be taken, in examining these dogs, that the rather natural but probably fatal mistake is not made.

Causes. — These are either dependent upon the animal itself or on the nature and form of the food. Under the first of these may be mentioned any reflex or direct nervous influence which may cause a spasmodic contraction of the muscles of the gullet upon the object swallowed (this chiefly happens in animals that have been rather recently relieved of a previous choke); previous narrowing of the part, as by the tight strap put around the necks of crib-biting horses; anything which prevents the proper flow of saliva into the mouth; and anything which prevents the food from being properly chewed and mixed with the saliva. Of the second class of causes: those cases in which the object swallowed is sharp-pointed, too large, or too dry. Among these may be included fish-bones, which are very troublesome in puppies; large, irregular-shaped, or sharp-ended bones. In cattle and sheep the most dangerous articles of food are cut roots, potatoes, and apples. Pieces of corn cob, when the grain is fed whole on the ear, in horses. Dry chaff, bran, meal, and even oats are not unapt to accumulate in the gullets of horses and form a most dangerous cause of the accident, instances not being at all rare when the gullet, which runs down the left side of the neck, has been stuffed full for nearly its whole length.

Symptoms may be *general*, as shown by all the animals; *differential*, as indicating the part of the gullet in which the obstruction has taken place; and *special*, as belonging to the condition exhibited by the different animals.

General Symptoms. — Liquids, because they cannot pass by the obstruction into the stomach, are thrown out at once; there is coughing and more or less violent gagging, uneasiness, difficulty in breathing, champing of the jaws, and flow of saliva from the mouth.

Differential Symptoms. — When the cause is lodged in the throat, there is great distress, coughing, slavering, symptoms of suffocation, and, in dogs particularly, ineffectual attempts at vomiting. If the obstruction is in that part of the gullet which runs down the neck, a swelling will be seen on the left side, at the given point. General symptoms are more or less intense, and the animal, with anxious face, lowered head, tremors, and partial sweats over the body, shows considerable exhaustion within a short time.

If the offending substance be lodged in the part of the gullet which passes through the cavity of the chest on its way to the stomach, the fact of the presence of this dangerous form of the accident is shown by the absence of the more urgent indications of suffocation: the

temporary distention of the gullet, as it passes upward along the neck, whenever water is swallowed; urgent attempts at vomiting so long as the gullet remains so filled; with a rather rapid progress toward exhaustion.

When impaction occurs from dry feed, bran, oats, etc., the head will be depressed, the eyes bloodshot, mucus and saliva will be discharged from the mouth and nose, and there is an evident swelling along the left side of the neck.

Special Symptoms in Horses. — The animal suddenly stops feeding, begins to swallow hard and frequently. If he is not successful in thus getting rid of the trouble, a sort of spasm follows, in which the neck becomes more or less curved, with the chin drawn back towards the counter, and, in rare instances, after a considerable continuation of the spasm, the animal shrieks; and the general symptoms are present.

In Cattle. — The animal stands with head extended, a profuse flow of saliva from the mouth, cough, and champing of the jaws, together with frequent gulping efforts. The eyes are bulged and bloodshot; he passes both manure and urine frequently. Very soon after the obstruction has taken place the paunch begins to be filled with the repressed gases of digestion and unless the obstruction to its upflow is soon removed, or a puncture is made through the flank, to let the gases out, the animal will die of suffocation. The general symptoms are present.

In Sheep. — The animal stops feeding, the breathing is more or less difficult, the paunch swells, and the case proceeds as described in cattle.

In the Dog. — Of the general symptoms, violent attempts at vomiting and a persistent cough are the most conspicuous special signs.

Treatment. — Various methods of relief are pursued, depending upon the position and character of the obstruction. These are: *First*, by the hand, and may be used successfully whenever the obstruction is at the back of the mouth or in the top of the gullet. The jaws are to be safely held apart by the insertion of a proper instrument (mouth speculum), if it is possible to obtain one; if not, a round iron ring of sufficient strength and size, a stirrup, or even a plow point *may* be used, but these last are of danger to the operator's arm, which may be easily broken if the instrument is allowed to slip out of the animal's mouth at the wrong moment. An assistant should attend to keeping the mouth open, while the operator attempts to grasp the object with his fingers and withdraw it; a whole apple is the most difficult to get hold of, but still its removal can be effected after patient effort.

In Sheep this method is more difficult than in horses and cattle because of the narrowness of the mouth. In dogs it is fairly easy provided the animal is held still by a sufficient number of assistants; the operator is to use his fingers in this animal, which can be done because the mouth opens wide and the parts are quite readily reached. Instruments, as long forceps, can be used in sheep and dogs, if proper ones are obtainable.

If the object cannot quite be reached in this way, an assistant should grasp the outside of the throat below the obstruction and attempt to push it upwards until it can be grasped by the operator.

If a solid object is lodged below the reach of the arm, an attempt to push it along into the stomach should be *carefully* made. The proper instrument for this purpose is a strong, fairly elastic tube having a "cup" end, of sufficient size and strength, called a probang. When this is not obtainable the butt end of an elastic horsewhip may be tried for all of the animals excepting the dog, but great care must be taken not to wound or push it through the walls of the gullet, for, if this is done, the animal will die. Before this attempt is made a small quantity of raw linseed oil should be turned into the throat, that the parts may be properly lubricated.

In horses choked with bran, oats, etc., if the obstruction is not too extensive, very much for good may be accomplished by repeatedly turning cold water down the throat and working over the upper end of the obstruction from the outside, with the fingers, giving the animal good opportunity to cough up such portions as have been so loosened, from time to time. No attempt should be made to push such an accumulation on into the stomach. If the services of a veterinarian can possibly be obtained, they should immediately be sought in all of these instances.

Crib-biting and Wind-sucking in Horses.

Causes. — A crib-biter can generally be detected by the worn-off appearance of the outer edges of the front teeth of the upper or lower jaw, or both, which is caused by the unusual wear due to the more or less constant grasping of the edges of the manger, or other hard substances, with these parts of the teeth.

Symptoms. — In the act of "cribbing" the horse grasps an object with the teeth, fixes his head, curves his neck, and some say eructates gases, while others say he swallows air. The last seems more probable because, if allowed to go on, the belly of the horse gradually becomes distended, and he has an attack of wind colic; while if a strap is put around the throat and buckled sufficiently tight to prevent him from swallowing, no such distention takes place. The horse may carry this bad habit to such an extent as to injure his digestion so considerably as to make him unable, by loss of general strength, to do the

full work of an animal of his class, besides which he must either wear a strap or constantly be subject to an attack of wind colic that may cause his death; such an animal is *unsound*. In cases where the act is simply confined to "biting," and in which no air is swallowed, the act is simply a vice, not an unsoundness, but it renders him of much less money value than he would otherwise have been.

Treatment. — The only thing to be done is to do away with the manger or any other hard object which the horse bites, or by constantly keeping him muzzled, except when he is eating, drinking, or at work. Wind-suckers must constantly wear a cribbing strap, unless it is found that the habit is prevented by the first named measures. Some wind-suckers get so that they will swallow air without first grasping an object with the teeth. It is said that the habit is often contracted by example, especially in young horses. It is *not* a disease, simply a nervous habit.

Disorders of the Stomach.

Vomiting. — This is the simple means by which animals discharge through the mouth or nostrils that which the stomach refuses to digest, or is likely to be injured by. All animals and all individuals are not equally as easily made to vomit as others; the horse performs the act with difficulty, and it was formerly thought that "no horse could vomit and live," because, in those that did, a *post mortem* examination discovered a ruptured stomach. But this is not true. *Cattle and sheep* seldom vomit.

In the Dog the act is commonly and so frequently accomplished while the animal is otherwise in apparent health, as well as when he is suffering from some disorder, that it almost seems as if he could "throw up" whenever he chose to do so.

The Symptoms are so well known as to need no description in this place. It should, however, be remembered that vomiting becomes a frequent and troublesome disorder in dogs when shown in connection with certain maladies.

Treatment. — In these cases in dogs it often becomes a matter of considerable importance to stop the vomiting if possible. This may often be accomplished by the use of ice water in very small quantities, as a teaspoonful in very obstinate cases, every half hour; or by the addition to this of a few drops of French brandy with each dose of water. Teaspoonful doses of pure lemon juice, well iced, will often succeed where other remedies have failed. From five to ten drops of tincture of opium given in the iced water often allays the irritation; but the opium should not be repeated oftener than each two hours, for three times, nor should any more of it be given at a time, after the first dose, than is absolutely required. Or the

following prescription may be tried: Tincture of opium, ten drops; chloroform, twenty drops; cold water, two tablespoonfuls. This is to be well mixed and all given at one dose, to a dog as large as a setter or collie; it will be found more useful in instances where the cause lies back of the stomach. The practise of giving dogs quantities of drugs, to make them throw up, so commonly practised by some, cannot be too greatly condemned.

Acute Indigestion.

Wind Colic, Flatulence, or distention of the stomach and bowels with the gases of indigestion, may be caused by alterations in the quality of the juices of the stomach and intestines, and to various obstructions in the bowels; both of which will so hinder the progress of digestion as to induce fermentations of the food and the giving off of the gases.

Causes. — Certain foods, as Indian meal; which is of especially difficult and slow digestion, fed in full rations to horses, cattle, and sheep that are not accustomed to eating them; cooked food to horses and cattle; musty hay or oats; half-wilted grass; or any food, including fresh grass, to which the animal is unaccustomed, or that which is given in such quantities at a time as to over-distend the walls of the stomach. In *cattle* and *sheep* the condition is most commonly produced by damp grasses, turnip and beet tops, green fodder corn, and green clover.

Dogs, because they vomit so easily, are not particularly troubled in this way.

Symptoms in the Horse are generally sudden in their onset: there is a fulness of the belly; the animal is restless and shows symptoms of colicky pains; he lies down, gets up, paws with his front feet. If the stomach is distended, he will gulp wind and discharge saliva from the mouth occasionally; the superficial muscles tremble, and the animal sweats in patches. These are the earlier and less severe manifestations. In severe cases the pain is very acute; the horse throws himself about wildly and frequently looks at his flanks; the pulse and breathing are hastened and in some cases attempts at vomiting are made, which are rarely fully successful; if the food is thrown up it is discharged through the nostrils. If the belly is greatly distended and hard, breathing becomes so difficult as to threaten suffocation. At other times, when the belly is but "slightly distended," there will be very little or no manifestation of pain, but the horse remains dull, half conscious, breathes heavily, is made to move with difficulty, and attempts to press his head against the wall.

In Cattle. — The disorder is frequently called hove, dew-blown, tympanitis, drum-belly, etc.

Symptoms. — While he is eating, or shortly after, a swelling of the paunch appears about the left flank. This increases in size more or less rapidly, the animal lifts his head, pants and appears dull; wind is sometimes gulped up in the early stages, and he ceases to “chew the cud.” In proportion to the rapidity with which the gases accumulate, the breathing becomes more labored; the animal moans; stands with an arched and stiff back; the tongue is protruded; eyes blood-shot and bulged; saliva dribbles from the mouth; the nostrils are rigidly expanded; and the belly, extended to the greatest extent possible, is “as hard as a board.” Unless soon relieved the animal staggers, falls, and dies from suffocation. Death may occur in a few minutes or he may live for a number of hours, all depending upon the amount of tympanitis present.

Or, the malady may be present in a *chronic* form, when the symptoms are not nearly as intense as in an acute attack; in which instances there is a functional derangement of the digestive organs, which causes an attack of hove whenever green food is given.

In Sheep. — The symptoms will be the same as in cattle.

Treatment. — In horses: give at once a large dose of saleratus in one pint of cold water. If pain is marked, give two or three ounces of tincture of opium, with one-half ounce of water of camphor in a cupful of warm water; and repeat each two or three hours, as necessary, until the pain and fulness of the belly are lessened; after the first dose, no more than two ounces of the tincture of opium should be given at a time. If the distention is very great and not quickly relieved by the medicine, the gas *must* be allowed to pass away through an opening into the bowels; this, to be at all safe, must be done by one who knows the anatomy of the parts.

As soon as the great distress has been relieved, the horse should have a dose of cathartic medicine; this may be one and one-half pints of raw linseed oil; or a pill of aloes (see prescriptions), to which one-half to one dram of calomel has been added.

In Cattle. — If the distention is great, the paunch should at once be tapped and the gases allowed to escape. If this cannot be done, a good purgative should be given as soon as possible. This may be, for a good sized cow, one and one-half pounds of Epsom salts, half a teacupful of molasses, and a tablespoonful of ground ginger; the salts to be dissolved in three pints of warm water; all to be mixed and given at one dose.

In Sheep. — The treatment will be the same as for cattle; the dose of the Epsom salts being six ounces, with tablespoonful of molasses and teaspoonful of ground ginger, with one pint of water.

Dogs. — As the flatulence is never as urgent as in the other animals, one or two compound cathartic pills, or a good dose of castor oil will be sufficient. The animal should not be allowed anything

to eat but milk, with lime water, in moderate quantities, given three times a day, for three or four days after he recovers from the attack; and his exercise should be quite limited.

In all animals the action of the physic may be hurried and eased by the judicious administration of injections of strong soapsuds given at a temperature which feels quite warm, but not hot, to the hand.

Spasmodic Colic in Horses.—This is another form of acute indigestion and arises from much the same set of causes as those given for the flatulent form just described. The *Symptoms* will be the same, excepting that there is no swelling of the belly, or sleepy stage, as described for the wind colic. This form of colic, if unassociated with organic troubles of the bowels, should never end fatally; that it is often supposed to do so is because the symptoms shown are precisely those of inflammation of the bowels in its earlier stages, and the attack has not been properly separated at the beginning. In pure colic the internal temperature is not raised; in inflammation of the bowels, from any cause, it is always raised and other symptoms of fever are always present.

The Treatment of spasmodic colic will be to stop the pain by the use of tincture of opium, as already advised; and, as recovery begins to be shown, raw linseed oil should be given in doses of from one to one and one-half pints, to which a tablespoonful of saleratus has been added. Injections of warm soapsuds will often aid the recovery and may be commenced as soon as the first dose of opium has been given, and continued each two hours.

In Cattle and Sheep two further forms of acute indigestion are met with, as, *Impaction of the paunch or rumen*. When an animal has swallowed a large quantity of moist food, grass, clover, fodder corn, etc., or some kinds of grain, the paunch may be filled to repletion and become quite distended from a process of fermentation setting up within the mass.

The symptoms are very similar to those of tympanitis just described, but they are not nearly as urgent and, if the distended paunch is firmly pressed upon, as by the closed fist, an impression will be left, for a little, as if the paunch was filled with dough. The appetite and “the cud” are lost, and the pulse is small and frequent.

Treatment.—Give at once a strong cathartic, as, in *cattle*, the dose of epsom salts already recommended, to which may be added from five to fifteen drops of croton oil; in *Sheep*, epsom salts as before advised, together with one drop of the oil. In addition to this, some stimulant may be required by some of the cases, and in varying quantities, as indicated by the particular animal. The agents to be used here will be either whiskey or the aromatic spirits of ammonia. (See dose table). The injection of warm soapsuds, as mentioned, will be especially valuable in these cases, as the first prime object

is to unload the bowels as soon as possible. Certain cases will be met with in which it will not be possible to accomplish this object by means of medicine, in which instances the veterinary surgeon will be able to open into the paunch, through the flank, and remove a good part of the contents of the overfilled stomach.

Fardel-bound, Impaction of the Third Stomach, or "Grass-ball," Vertigo, etc., are names which with some others are given to a form of acute indigestion met with among *cattle and sheep*.

The symptoms in cattle vary considerably at the beginning of the trouble. It will be noticed that he goes about with rather a drooping head; that while the appetite remains fairly good he goes picking about and shows a little uneasiness occasionally; the bowels may be constipated or the opposite condition of them may exist. This goes on for from twelve to twenty-four hours, when suddenly the victim shows a wild look, with prominent, bloodshot eyes; the tongue is protruded and he breathes quickly; and the appetite is now entirely lost. After a little, marked delirium is shown; if the animal is tied by the head he will fall forward, drop onto his side, and lie with rigid, quivering legs, until the convulsive attack subsides. Cattle that are loose in a field rush frantically forward and indicate some loss of sight or total blindness, by stumbling over small obstacles or running their heads against trees or other objects. Sometimes the animals will tear up the earth with their horns, stamping and roaring in a most violent manner. There is no apparent desire to attack persons or other animals. According to its severity an attack lasts from an hour or two to several days, death being the usual result unless treatment is perseveringly and carefully kept up. In sheep the line of symptoms are about the same.

Treatment. — At the commencement give one full dose of raw linseed oil and saleratus; at the same time begin to give moderate doses of either the tincture of aconite root each two hours in two ounces of cold water, or the fluid extract of belladonna, clear, on the tongue, three times daily. Do not continue the aconite for more than one day or the belladonna for more than three days. After this, if anything more is needed, give to cattle from eight to twelve ounces of epsom salts with fifteen grains of quinine in three pints of water, not oftener than once in each twenty-four hours. This should not be continued after the bowels begin to move, or if they do not move quite satisfactorily, lessen the dose of salts, keeping up the full dose of quinine. For sheep give the same treatment but reduce the amounts of the medicines used to those proper for the animal. (See table of doses.)

Chronic Indigestion.

This frequently met with disorder occurs in all the animals, and in them presents itself under such a variety of circumstances as to

make it difficult to lay down anything like an absolute description of its causes and symptoms, which, therefore, must be treated in a general way.

Causes. — These are chiefly errors in diet, though they are not always easily found and recognized. The food may be too stimulating, too dry, not nutritious enough, not sufficiently well chewed, and this may be due to bad or sharp teeth or a habit of “bolting” the food, as shown by many horses and dogs; the feeding times may be irregular; the food may be given in too large quantities at a time; and, in horses, drinking heartily just before going to work. Impaired nervous power oftentimes prevents the full and necessary movements of the stomach during the earlier digestion, or of the bowels later on. If a horse, ox, or dog is fed a full meal when he first comes in tired from work, he is apt to become a victim of chronic indigestion.

Symptoms are variable. The appetite may or may not be impaired, capricious, or even perverted, at which times horses, cattle, and dogs will eat a variety of unusual substances. At other times, although the animal eats enough, or more than that, of good food, he continues to lose flesh, sweats easily upon slight exertion, the coat looks unhealthy, and the skin becomes dry and hard (hidebound). The bowels discharges oftentimes, seem to be in perfect condition as to quantity, consistency, and color; there may be constipation, or a moderate diarrhoea may be shown, especially during exercise; or these two last conditions may alternate without apparent cause. In many instances urine of a light color is passed in large quantities; occasionally the secretion will be very noticeably scant and of a dark yellow color, and when passed it may cause some uneasiness to be shown by the horse or dog, as if from a burning sensation. Thirst may be considerable or not; a *horse* will perhaps show a slightly coated tongue and have a sour, pasty-smelling mouth; *dogs*, a heavily coated tongue and a disagreeable breath, and all animals may have little sores, like “canker,” about the mouth or on the under side of the tongue. Small worms may be shown; if so, they will pass away as the digestion improves, without special treatment. Attacks of colic of more or less importance will be shown occasionally, especially among animals that have voracious appetites and are allowed to eat freely. All animals are dull and listless while at work or exercise; or they may seem active one day and dull the next.

Treatment. — All animals had better receive; at first, the usual dose of oil, whether the bowels are loose or not; but in those that already have diarrhoeal symptoms, all exercise should be stopped for two or three days after the oil has been given; this must be followed by continual administration of some good tonic, for horses, cattle, and sheep. (See prescriptions.) For dogs the citrate of iron and quinine pills, with a powder of bismuth and soda, five grains of

each, three times daily, given dry on the tongue. All animals should be carefully and regularly fed; in horses, cattle, and sheep no Indian meal or linseed cake should be allowed, until they have fully recovered. In dogs there is no better feed than milk with either wheat or graham stale bread or boiled rice well soaked in it, fed in rather small quantities three times a day; if the case is a bad one, with occasional vomiting and diarrhœa, a tablespoonful of lime water had best be mixed with each tumblerful of the milk.

Foreign Bodies in the Paunch of Cattle.

Not uncommonly these animals swallow such sharp-pointed objects as nails, hairpins, knitting-needles, small pieces of iron, and other similar articles. These bodies, when they have been swallowed, may gradually be pushed outward toward one side or the other and appear at almost any point and cause an abscess on the surface under the skin. If such an abscess is opened, the foreign body will be disclosed and can generally be removed without difficulty or danger.

At other times, and frequently, the sharp-pointed object is urged forward by the natural movements of the parts, through the midriff, until it pierces the heart and causes the death of the animal.

The Symptoms of this condition of affairs will be more or less abdominal pain, nausea, tympany, anemia, dropsical swellings about the dewlap; all accompanied by a fickle appetite and an obstinate diarrhea.

Treatment. — Nothing can be done to save the life and, therefore, as soon as it is determined that this cause is in operation, the sooner the animal is made into beef the better it will be.

Inflammation of the Stomach in Horses, Cattle, Sheep, and Dogs.

This condition may be *acute* or *chronic*

Acute Disorder. — It is thought by many authorities that this condition cannot exist excepting as a result of poisoning; and there is no doubt that such substances as arsenic, mercury, antimony, copper, wood ashes, and sometimes lead salts, are, as a rule, responsible for its appearance. Still, to some little extent among horses, cattle, and sheep, and to a greater extent among dogs, the disorder is seen and recognized when no question of poisoning can be entertained.

Causes. — Mineral poisons, or the presence in the stomach of some foreign or indigestible substance.

Symptoms. — Evidences of great pain, nausea, and, in the dog always, in the horse occasionally, vomiting. *The horse* looks around

to the left flank, crouches, and cannot stand quiet or erect. The pulse is quick and, though strong at first, soon becomes feeble, irregular, and indistinct at the jaw; the extremities grow cold, partial sweats break out over the body; evidences of stupor appear, to be followed by unconsciousness, unless relief is given, and the animal dies either paralytic or in convulsions, the pain having been most intense throughout. In one case seen by the writer the spasms of pain were so severe as to pull the chin, at intervals, very nearly to the counter, and each severer spasm was accompanied by a loud shriek, but there was no vomiting. In two other cases, also seen by the writer, full vomiting took place. All three of these cases recovered.

In Cattle and Sheep. There is a highly disturbed condition of the nervous system, evidenced either by delirium, as shown in fardel-bound, insensibility, repeated convulsive fits, or paralysis of the hind extremities, with at first a more or less profuse diarrhoea, which, however, stops as soon as the nervous symptoms are well set up.

In dogs the evidences of great pain, frequent and severe vomiting are after a time followed by convulsions, paralysis, and insensibility.

The Treatment of acute gastritis will in a great measure be that for any inflammation of the bowels. The first thing will be to stop the pain as quickly as possible; for this opium offers the best hope. *Horses* may receive tincture of opium in doses of from two to four ounces, with twenty-five drops of tincture of aconite root in a cupful of warm water, each two hours, for as long as necessary; this dose may be increased or diminished as required; the horse above referred to as "shrieking" received eight ounces of tincture of opium at the first dose and after that two of four ounces each and one of two ounces. This is a very large quantity, but the animal needed it.

In Cattle and Sheep aconite and belladonna had best be substituted for the opium (see dose table), and a good dose, as one quart, of raw linseed oil can be given with advantage in many cases; if required it may be repeated in from eighteen to twenty hours. *In sheep* the dose of the oil will be from six to eight ounces. *In dogs* the constant vomiting becomes a very troublesome complication and must be managed under the rules already given, as, in the special nature of each case, seems to produce the best results. Always begin with moderate doses of tincture of opium, as ten drops for medium-sized animals, in a half teaspoonful of *iced* water, and repeat every two hours, if it is not rejected by the stomach; if it is thrown up, the stomach must be quieted by some of the other methods, and the opium tried again. An injection of morphine under the skin, given by one who understands the operation, will often be found exceedingly useful.

When any of the corrosive poisons are known to be the cause, whites of eggs, milk, linseed jelly, or even linseed oil should be given at once

and repeatedly, to protect the walls of the stomach; after which, if the exact poison is known, its proper antidote is, of course, to be given. This should be done by a medical practitioner in each case. (See table of antidotes.)

Chronic Inflammation of the stomach may be met with as the sequel of an acute attack, but is much more apt to follow dietetic errors. It is exceedingly common among dogs, especially among those that cannot be kept from stealing from the refuse food deposits of the neighbors.

Symptoms. — In *horses*, *cattle*, and *sheep* are those of chronic indigestion, already described. In *dogs*, although there is a good appetite, the food is rejected by the stomach; there is considerable thirst and the animal places itself in a peculiar position by standing on his hind legs while both his front paws are stretched out to their full extent forward, thus bringing the chest nearly to the ground; and in this position he will stand for long periods of time together.

Treatment. — In *horses*, *cattle*, and *sheep* will be that already recommended for chronic indigestion. In *dogs*, tie the animal up and give iced water in small quantities at a time, *and nothing else*, for twenty-four hours. He may then begin to have small quantities at a time of milk and lime water, in the proportion of a tablespoonful of the lime water to each tumblerful of milk, three times a day; in addition to which *one teaspoonful* of finely chopped, lean, raw beef may be given once a day; this food can gradually be added to, by increasing the raw beef, as it is found that the animal stops the vomiting. From the commencement, and until the stomach becomes perfectly quiet, give one of the following powders, dry on the tongue, three times a day; subnitrate of bismuth and bicarbonate of soda, of each one dram, which should be well mixed together and divided into twelve powders.

Diseases of the Intestines.

Constipation, or torpid action of the bowels, occurs in all of the animals.

Causes. — The condition may depend upon intestinal obstruction, diminished muscular movements of the bowels (peristaltic action), or deficient intestinal secretions. Retention of undigested and waste materials in the bowels will lead, after a varying interval, to congestion or inflammation of the bowels.

Symptoms. — There will generally be a full and distended belly, although this is not constant; the motions are few, irregular, difficult, and attended with more or less straining. If the condition continues, the appetite becomes impaired, the strength lessened, and the pulse feeble and irregular; if the temperature rises to any marked degree,

it is because congestion and inflammation of the bowels are commencing to take place. In some instances a yellow jelly-like mucous secretion is discharged, either alone or mixed with or covering the manure.

Treatment. — In many slight attacks a change to food of a more laxative nature will be all that is required, as, *to horses*, grass, carrots, potatoes not to exceed one quart at a time, bran “mash” made with warm water and with the addition of a tablespoonful of salt; *to cattle and sheep*, grass, beets, turnips, and bran mash; *to dogs*, milk with lime water, beef broth, oatmeal, vegetables with a little gravy over them, but absolutely *no meat*.

In the more pronounced instances, good doses of oil with saleratus should be given at once, and the food changed as indicated. The oil may be repeated *once*, if necessary, at the proper intervals, but no more than two doses should be given in any instance, and if this does not have the desired effect, the food should be considerably lessened in quantity until the bowels have been well unloaded. If colicky pains are shown at intervals to any troublesome extent, tincture of opium, in doses just large enough to stop the pain, mixed with a little oil, should be given to *horses and dogs*; aconite and belladonna to *cattle and sheep*. In all of the animals an occasional injection of warm soap-suds will give good results in helping on the action of the oil and in clearing out the rectum. It is sometimes found at the first examination of the ailing animal that the rectum is packed full of hard manure; this condition should always be removed, as with the hand in the larger animals, the finger or other convenient small instrument, as a teaspoon-handle, in the smaller ones.

The constipation being relieved, all of the animals should receive a course of some good vegetable tonic. (See prescriptions.) If, after this, constipation recurs to any marked extent, the animal should continue to receive the laxative foods as already suggested, and the tonic powders should be continued.

In old dogs that have a chronic trouble of this kind, five drops, more or less, of the fluid cascara may be given every night, or less often as required, in a teaspoonful of cold water. It is not good treatment to press the cathartic medicine too hard, for it will not accomplish the object if the two doses recommended are not sufficient; and, if given beyond the two doses, it may be the cause of an early inflammation. The writer has repeatedly seen horses go from seven to nine days without a motion of the bowels whatever, and then come out all right under the treatment advised.

Diarrhœa, is the general term applied to an unnatural fluidity and an increased amount of discharge from the bowels. It is met with as a functional disturbance of various nature, or as a symptom in the course of general or specific disease, as has been shown.

Causes. — The proximate causes of the great fluid discharges are

excessive secretion from the membrane lining the bowels, which, in itself, gives rise to great increase of their natural activity. These conditions are, in their turn, due to direct irritation of the lining membrane from without, as, for instance, by food, foul water, worms, etc.; or, indirectly, to influences generated within the animal itself, as from various specific fevers; nervous conditions, as over exercise in some individuals, fear in some others, or any unusual nervous excitement. Perhaps of all the causes of diarrhœa the most frequent are injurious food and irregular feeding; sudden *changes* in the diet, especially from a dry to a moist or laxative one; drinking large quantities of water, when heated either by long exposure to the sun or after exertion; and feeding immediately after severe work or exposure to cold and damp. Fat horses that are used to no more than gentle exercise, as well as horses which have a highly nervous temperament, are especially liable to diarrhœa while being driven on the road, and this last form being due, as it is, to the constitutional make-up of the animal, is next to impossible to remedy; they can be *stopped* for the time by having a powder of gentian root and sulphate of iron (see prescriptions), mixed in their feed, but as soon as the powder is discontinued the diarrhœa generally commences again.

Symptoms. — The bowel discharges are semifluid, and may be with or without offensive odor. If the discharges are long continued, the animal loses flesh and the appetite becomes fickle. In some instances there is great prostration; colicky pains, or gripes, are not uncommon, and the breathing is hastened; unless these symptoms, together with vomiting in dogs or great prostration in any of the animals, are present the pulse is not usually hastened.

Treatment. — The exact cause should be carefully looked for and removed if possible. The animal should be tied up and kept so for as long as the discharges continue; and about one half of the usual dose of oil had better be given. Further than this, in most instances, medicines are not required unless the discharges are excessive, or the pain and general disturbance great. No cold water should be allowed, but, inasmuch as the excessive discharges of fluid generally give rise to a considerable thirst, a mixture of wheat flour and water should be given in reasonable quantities, a few swallows at a time and frequently. The body should be warmly covered, and, above all, defended from drafts of air. The diet should be that which is easily digested and quite limited in amount. If these simple measures are not sufficient an attempt should be made to check the discharges by the administration of very small doses of tincture of opium mixed with brandy or whiskey and water, not oftener than once in each two hours, always giving as little as it is found will *gradually* stop the discharges, which must not be checked too suddenly, as, by so doing much mischief may be caused. If pain is excessive, in addition to giving tincture of opium the belly may be rubbed with a good stimu-

lating liniment, and the parts covered, as already directed, with a dry blanket or a flannel jacket. The use of astringent remedies, so commonly recommended, had better not be used, except perhaps in cattle and sheep.

Diarrhœa, the Scours, or White Skit in *foals, calves, and lambs*, differs from the diarrhœa of adult animals sufficiently to merit special consideration. This form of the disease, which is not so common in foals as among calves and lambs, may be looked upon as being a specific intestinal catarrh, and a very serious affection.

Causes. — It owes its origin to changes in the quality of the milk upon which it feeds; as well as to defective sanitary arrangements by which it may be surrounded.

Symptoms. — The malady usually appears during the first two or three weeks of life in the foal and lamb; but in calves it is frequently first shown at a somewhat later period, in which instances it is due to an attempt to change the food by adding a proportion of skim milk, and when the temperature and sweetness of the milk, as well as cleanliness of the various pails, etc., have not been properly attended to. The manure is at first of a greenish white color, and there is little or no pain expressed. Later on, or perhaps from the first in the more serious cases, the discharges are exceedingly sour, full of bubbles of gas, which indicate fermentation of the food; and there is considerable colicky pain. If the disorder goes on the little animal ceases to eat, loses flesh rapidly, sinks, and dies.

Treatment. — At the very first all errors in diet should be corrected. The food, which may well consist in part of skimmed milk, *must* be sweet, given at a temperature of about one hundred and one degrees, in small quantities at a time and at least four times a day at first; and all utensils used must be well scalded, sweet, and clean.

For medicines, give at first one small dose of either sweet or linseed oil, which will be useful in helping to remove the offending substances which are in the bowels; and for a little time add lime water to all of the milk allowed, the proportion of which will be one tablespoonful to each pint of milk. When pain and straining are prominent features, opium, chloroform, and camphor may be given as required, in a little slightly warmed water; or, if in addition to the pain the animal is weak, give the opium in a little brandy or whiskey. (See dose table.) If necessary, the belly may be rubbed with stimulating liniment and covered with dry flannel.

Inflammation of the Bowels. — This affection, always to be dreaded, varies considerably in its manner of declaring itself and in the intensity of the attack; it may be so severe as to destroy life within a few hours of its first appearance in horses and dogs. Cattle and sheep are not particularly subject to the disorder. The bowels are very seldom affected throughout their entire extent; by some it

is said to attack the larger intestines more frequently than the smaller ones; this is more likely to be the case in horses than in dogs. The malady is more commonly seen in adults than in the young.

Causes. — As has been said the degree of the attack may vary widely; an animal, seemingly in perfect health, may be suddenly seized and die in a few hours. Of this variety the causes are not always apparent, but overexertion, long exposure to cold and wet, drinking cold water when heated, or washing the body of a heated animal with cold water, have been known to give rise to it.

The more usual form is of slower development, although the extent to which the process may finally reach is, in many instances, very considerable. This form is caused by local impactions of the bowels, constipation, twists, intussusception, worms, and various poisons, as already pointed out. In addition to this, the disorder may follow certain specific fevers, which have been specified.

Symptoms. — Excepting in the very sudden attacks soon followed by death, as explained, the animal will show a general constitutional disturbance, as indicated by hurried breathing, dulness, loss of appetite, with or without a marked shivering fit. Abdominal pain begins to be shown which, unlike that of colic, is continuous, rarely intermitting in the least, and evidently more painful. The pulse, at first quick, hard, and wiry, becomes later on more frequent, of less volume, more feeble, and finally imperceptible; in number it varies from seventy or eighty to one hundred and twenty, or even more, to the minute. The internal temperature generally runs to from one hundred and three to one hundred and four, although it may not exceed one hundred and two, or it may reach to one hundred and seven. As the pain increases, the horse stamps, strikes at his belly, and when he lies down he does so with greater care than in colic, for any increased pressure upon the belly now causes an increase of the pain, while in colic it often gives temporary relief. The animal looks toward his flanks, sweats copiously, and groans from excessive pain. At other times he stands almost motionless, so great is the pain caused by any movement of the body, his face plainly expressing the suffering he is undergoing. The surface of the body is covered, in patches, by a cold sweat; the pupils of the eyes are dilated, and delirium or stupor may follow. Or, he may become more restless than ever, wander about aimlessly, throw himself down recklessly, and roll violently, with apparent disregard of all obstacles.

At other times he will balance himself for a short interval, with teeth clenched, pulse imperceptible, legs and ears icy cold; when after a little he suddenly falls and dies exhausted, after a more or less severe struggle.

In other attacks an apparent improvement takes place before death: the horse stands at rest for a while, yet, though the breathing becomes more quiet, the symptoms of pain much less, and the animal

will even eat a little, the face maintains its haggard, dejected appearance; cold patchy sweats cover the body; the pulse is nearly or quite imperceptible; and, after a little, he dies exhausted, with gangrene of the bowels.

In still other instances the animal persistently stands as already described, the body trembles continuously, the lips fall apart, the eyes become dull, the mouth cold and clammy, the breath smells badly, until at length, completely exhausted, he drops dead.

The Dog is very uneasy, cries continuously, gets up and down; if a cold floor or a pool of shallow water is within his reach, he will lie there flat on his belly, with all of the legs sprawled out. The face expresses great pain and anxiety; the pulse, temperature, and breathing are of the same character as described for the horse. Death usually takes place in from twelve to twenty-four hours.

Treatment. — It is very important that no cathartic medicine be given, because the bowels when inflamed are completely paralyzed, as are other tissues; and all attempts to move them will simply add to the intensity of the inflammatory process by crowding down material upon the diseased portion, which it cannot pass, but where it must remain and act as a further source of irritation.

If any hope of recovery is to be entertained, the case must be put under treatment during the very first of the attack; and the measures undertaken for the cure must be thoroughly and carefully persisted in until all danger is over; if active treatment is stopped too soon, relapse is apt to take place. The measures to be undertaken are to try and stop the pain by the use of tincture of opium, given in a little iced water, each two hours, in such doses as are indicated by the individual attack. In the first stages, while the pulse is frequent and comparatively full, the tincture of aconite root in doses of twenty-five drops, in two ounces of cold water, given each two hours, will be of the greatest service in helping to lessen the congestion and so the extent of the inflammation; the aconite *must* be discontinued as soon as the pulse begins to show weakness by becoming small and wiry. The belly should be covered closely with the "three-folded" blanket wrung out of very hot water, and that covered with a dry blanket, all held in place by two surcingles; the hot blanket should be repeated frequently at first; afterward, as the pain grows less, often enough to keep the parts warm; great care must be taken to wring the hot water blankets so dry, before they are applied, that water will not drop from them. The legs must be bandaged with flannel, and stimulating liniment may be used on them, if it seems to be required by their persistent coldness. Although no cathartics should be used, the bowels had better be occasionally solicited to action by the use of hot soap-suds injections. If the animal is inclined to drink he may be allowed iced water freely, a few swallows at a time each ten or fifteen minutes, with the best results. The greatest quietude pos-

sible should be maintained throughout the attack; and on no account should the animal be taken out and made to walk, as is too often done. After recovery, soft sloppy food, as oatmeal gruel, hay tea, milk, and raw eggs, should be given in small quantities at a time, for three or four days, or until all danger of relapse is passed; and even then the return to the usual food should be made gradually and carefully.

Diseases of the Urinary Organs.

Ailments of these organs, meaning the ureters, kidneys, and bladder, which in mankind, for reasons easily appreciated, are so various and important are in the animals few in numbers, of rare occurrence; and their detection when present is so difficult, needing, as it does, the use of chemical tests and the microscope; and the remedy is so apt to be of the nature of surgery, that the services of a veterinarian should be obtained whenever their presence is suspected. The same may be said to be true of diseases of the organs of generation, even in a greater degree.

Diseases of the Nervous System.

Inasmuch as the structure of the brain in animals is far less complex than it is in man, and as it forms a much smaller proportionate share of the weight of the body, nervous diseases are of far less frequent occurrence in them.

Inflammation of the Brain.

Causes. — Blows upon the head, which injure the bones of the cranium, or rarely diseases of these bones; exhaustion and exposure, especially to a hot sun; as a result of certain fevers; from the entrance into the system of such specific germs as those of rabies, etc.; as well as in connection with certain forms of indigestion.

Symptoms. — When the covering of the brain is the first to be implicated, the attack is noted for the suddenness and violence with which the disorder asserts itself. The general indications are fever, with a sharp, hard and irregular pulse; a high temperature; irregular breathing; and constipation.

There seems to be much pain in the head, it is held stiffly or even pressed into a corner or against a wall; the pupil of the eye is contracted; there is a look of sullenness; there may be convulsive muscular twitchings, actual delirium, or strong convulsions if the malady is extensive. Sudden noises will increase any of these symptoms. If this first stage is survived, there will be within from a few hours to two days a new line of symptoms, which indicate that the disorder has progressed sufficiently to complicate the deeper brain tissues.

The fever subsides, the temperature is lower, the pulse less frequent, the breathing becomes heavy, the excitability or delirium is gradually lessened; special sensation, as from the prick of a pin, becomes dulled. The animal will, if standing, remain listlessly in one position, the head lowered, the eyes glassy, with their pupils dilated. Control over voluntary movements becomes more and more disturbed until he falls; convulsions, followed by insensibility, with snoring, breathing, are then shown; the eyes are open and paralyzed; the body is covered by cold sweats; all of the natural openings are relaxed; and death soon follows.

Treatment. — The usual *full* doses of cathartics for the different animals should at once be given. (See prescriptions.) Cold water or ice should be constantly applied to the head, so far as it is possible. If this is not possible, sop the poll of the head frequently with a good cooling lotion, as: liquor of the acetate of ammonia, one ounce; alcohol, two ounces; water, five ounces. Or, instead, this one: chloride of ammonia, one half ounce; alcohol, one ounce; dilute acetic acid, one and one half ounces; with water enough to make an eight ounce mixture. For the purpose of further lessening the diseased action, there is probably nothing better than iodide of potash, which may be given in large doses every four hours, if possible. Should convalescence happily follow treatment, great care must be taken to keep the animal where it is quiet, and give him easily digested food for a time, or relapse is likely to occur.

Other disorders of the brain, as chronic thickening of its coverings, softening, hardness, tumors, etc., will be discovered only by the expert veterinarian, and they, as well as apoplexy of the brain, are of such a hopeless nature and occur so rarely that their description here seems to be unnecessary.

Concussion of the Brain without Fracture of the Skull.

Although the skulls of animals, horses, cattle and particularly sheep, are fairly well guarded from the effects of accidental blows upon the parts of them covering the brain, still it not unfrequently happens that blows are received of sufficient force to cause insensibility of longer or shorter duration and importance.

Causes. — The condition is apt to occur in horses that rear and fall backward, striking the head upon the floor or other hard substance; that run away and end up by striking the head against a brick wall or plate-glass window; or to any animal that receives a blow upon the parts, as from a club or otherwise, which is of sufficient force to cause stupor, more or less insensibility, and loss of muscular power, from which he may rally quickly or not for many hours; or from which he may die almost at once or at the end of some days of insensibility.

Symptoms will vary in accordance with the degree of concussion.

When the shock has been but a slight one the animal soon recovers from the unconsciousness, showing nothing more than a slight stupor with some unevenness of muscular action in walking, all of which pass off after a rest of two or three days, at most. When the blow received has been more severe, the insensibility continues longer; the animal lies as if in a deep sleep; the eyes are paralyzed; the body surface cold; the muscles soft and relaxed; the pulse fluttering or feeble; and the breathing weak and sometimes almost imperceptible. From this condition the animal gradually recovers in favorable instance; or slowly sinks and dies without having regained consciousness.

Treatment. — At first quiet. If after a few hours some degree of consciousness has returned and reaction seems to be strong, the head of the animal should be raised and placed comfortably on bundles of straw or other convenient article, and finely pounded ice in a bladder or rubber bag put onto the parts, which may be all that is required. Generally speaking, however, the depressing effect upon the system is so great that stimulants, such as brandy or the aromatic spirits of ammonia, properly diluted in cold water, should be cautiously given. At the same time, so long as the body surface remains cold, the animal should be rubbed, blanketed, bandaged, and made as warm and comfortable as possible. Further treatment will consist in keeping the bowel discharges in rather a loose condition by a proper regulation of the food, if possible; if not, by the use of small doses of oil or epsom salts.

Sunstroke follows exposure to hot sun rays in an overheated atmosphere, in some individuals; and affects horses, cattle, and dogs.

Causes. — Horses are generally attacked during work; cattle and dogs when they are confined, as in a small yard where no shade is obtainable, for a length of time.

Symptoms. — It may be noticed that the horse does not sweat as he should; it will be noticed that he seems dull, becomes unsteady, and then falls, lying more or less fully insensible. The other animals lie and pant until they gradually become more or less unconscious. The skin is hot; the breathing difficult; the heart's action irregular; and, just before death, the breathing gets gasping.

Treatment will consist in removing the animal to a cool, shady place, or in erecting a temporary shade over him where he lies; cold water sponging of the head; the judicious administration of stimulants, as brandy or ammonia, as soon as the animal is able to swallow, with, as soon as he can drink, iced water in small quantities at a time, but at frequent intervals.

Blind Staggers; Vertigo; Cerebral Congestion.

This is one of the most frequently seen disturbances of the brain in horses, as every one knows.

Causes. — Temporary congestions of the brain are seen in horses of all makes, shapes, and sizes, and are generally dependent upon some condition of indigestion, together with exercise too soon after eating. "Fits" in dogs are often of this nature and due to the same causes. Their occurrence may also be due to a plethoric condition of body; to certain disorders of the heart, either functional or organic; or to any cause through which the proper circulation of the blood is so interfered with as to allow too much of that fluid to reach the brain, or to be retained in that structure, as by a badly fitting "breastplate" or collar.

Symptoms. — These are invariably sudden in their appearance. If upon the road, the horse slackens his pace or suddenly stops; there is a shaking of the head as if some object had entered the ear, or the head is "tossed" up and down. The blood-vessels of the neck and head look full; the eyes stare; the nostrils are held wide open; the breathing is rapid, with perhaps some little noise; the muscles of the face and neck show a slight, rapid, twitching movement; the body is covered by a moderate sweat; and the front legs are braced apart, as if for support. Occasionally, the attack proceeds no further, when after a few moments the animal proceeds on his journey in a listless way at first, afterward with his usual interest.

When, however, the case is one of greater severity, the muscular twitchings become more extensive; excitement is greater, until action reaches to beyond the control of the animal; he plunges forward, bolts, or rears and falls to the ground. The paroxysm rarely lasts for more than a few minutes.

Treatment. — The first indication will be to remove the cause, if it is due to pressure from the collar or breastplate. All further necessary treatment in any case will be to dash cold water onto the head, until all excitement is passed away; or, if this cannot be done, hold the animal as still as possible until the fit passes off, which will be, as a rule, but a very few minutes. The common practise of "bleeding" these horses in the mouth is entirely without effect, for the amount of blood that is thus allowed to escape is so small as to have no effect whatever upon the animal. Besides which, the operation is not without danger to the horse, because, if the cut is made at all deeply, at the part usually selected, the third "bar" behind the upper teeth, a rather large artery will be opened, which, because of the hard nature of the tissues in which it is situated, is exceedingly difficult to close.

Diseases of the Spinal Cord.

The spinal cord, in connection with the brain, is the organ of sensation and voluntary motion to the trunk and extremities in all animals. If the cord or its coverings are injured in such a way as to cause the slightest pressure upon them, there will be more or less

interference with the motions of the animal *behind* the affected portion. When the pressure is slight the animal can walk, but does so in a more or less uncontrolled manner. If the pressure or injury is extreme, there is complete paralysis of the parts behind it.

Acute Inflammation of the Cord and its Coverings.

Causes. — The cord and its membranes are subject to inflammations, which may be due to a fall, to heavy blows upon the back, as well as to certain fevers which affect the parts.

Symptoms. — If the cord itself is much implicated in the process, preliminary symptoms are entirely absent, paralysis being the first thing that is noticed. On the other hand, if the covering membranes are first affected, there will be spasmodic contractions of the large muscles behind the seat of injury. The animal will seem as if suddenly seized with a "cramp" of the hind legs; the feet are lifted rapidly and in a jerking way from, and are in the same way placed again upon, the ground; and while these movements evidently cause pain the animal does not seem to be able to stop them at will, although at this early stage there may be short periods of rest and freedom from them. As time goes on the spasms become more frequent; the animal sweats freely, and is restless; this may continue for some hours, rarely exceeding twelve; finally, the animal becomes paralyzed behind and falls to the ground.

Treatment should be conducted upon the general principles already advised in inflammatory disorders, excepting that here a large dose of physic should always be given at once, and a folded blanket, carefully wrung out of very hot water, should be put over the back, covered with a folded dry blanket, and all held in place by two surcingles and changed often enough to keep the parts warm.

Chronic Inflammation of the Spinal Cord.

Shivering. — *The broken, sprained, or "jinked back," as recognized by some horse owners.*

In addition to the active forms of inflammatory disease of these parts, as just described, which run their course rapidly and terminate in death or, more rarely, in a gradual decline of symptoms, there are, in the horse, conditions in which there exist certain irregularities of action, with a gradually increasing failure of motion, which, after a long time, end in more or less complete paralysis of the hind extremities.

Causes. — These are not generally known; it is extremely probable that the animal has received, at some time or other, a slight appli-

cation of the causes of the acute form; that he has slipped in backing heavy loads, in a way that has caused some little over action of the backbone; or that there may be a bony growth upon one of the bones of the back, which, gradually increasing, causes, slowly, more and more pressure upon the coverings of the cord.

Symptoms are generally first noticed as the animal is being backed out of his stall, when, at first, there will be some apparent reluctance in lifting the hind feet; then, in some cases, when the foot is lifted and moved backward in the air, there is a "shivering" of it, as if an attempt were being made to shake off some offending substance; or there may be a violent "string halt" action of one or both hind legs. After a varying time the animal shows less disposition to lie down than formerly; or when down there is greater difficulty in getting up, until finally it comes that the horse must be helped before he can gain his hind feet, after which he generally seems to prefer to stand day and night. Together with these symptoms, and coming on very slowly, a marked deficiency of muscular power is shown, he almost refuses to back, or does so with difficulty; his hinder parts roll from side to side more or less weakly, as he moves forward; next he shows badly in turning; he begins to "knuckle" at the fetlocks, to interfere, and finally becomes more or less paralyzed, and has to be destroyed.

Treatment will consist in an endeavor to stimulate the parts to regain their healthy action; and this is to be accomplished, if at all, by the use of strychnine (see prescriptions) and repeated blistering of the back, or, perhaps, by firing and blistering along each side of the backbone. In blistering the back care must be taken not to use too much of the cantharidine ointment, or to rub it in too hard, or else it will permanently destroy the hair. Horses with this trouble should be kept in slings while in the stable, to prevent them from being "cast" in the stall and further injured.

St. Vitus' Dance (Chorea) in Dogs.

Causes. — The most frequent cause of this uncontrollable twitching of various muscles, or groups of muscles, is undoubtedly an after effect of the "distemper" poison. It may also arise in young dogs as a result of the irritation caused by intestinal worms; or by teething, in some cases.

Symptoms. — Chorea generally begins, and especially so if following an attack of distemper, with occasional spasms of the temporal muscles; or it may show itself in other muscles of the face, or even those of the eyes; or there may be a constant jerking of the head and lower jaw; of the fore legs; or, in fact, of any of the muscles; and, after the symptom is well set up, the twitchings of the affected muscles will

have a marked regularity of action. These movements do not cease while the animal is lying down, but they frequently do while he is asleep.

The stomach and bowels are usually deranged; the appetite is fickle and irregular; constipation is troublesome; diarrhœa is rarely present. In some cases the dog will return to perfect health, except for the continued twichings, and remain so for years, but if the chorea attacks while the animal is in a debilitated condition, and especially if it immediately follows an attack of distemper, either because the restlessness causes increasing and distressing debility, or else because of the further action of the distemper poison upon the nervous system, the chorea is gradually followed by attacks of convulsions, more or less insensibility, paralysis and death.

Treatment. — The only plan of medical treatment to be recommended will consist in regulating the bowels, subduing irritation as much as possible, and strengthening the system. For these purposes the employment of stimulating cathartics, if they are necessary, as they usually are, such as calomel and jalap, or, more conveniently, the compound cathartic pills, of the drug shops, in sufficient numbers to produce the required action, as from one pill in small dogs to two or three in the larger ones, had better be used once, or if necessary twice, at the beginning. After that a five-grain tablet of cascara compound, or ten drops of the fluid cascara, in a little water may be given each night, or less after or in a smaller dose, as required. For subduing the irritation and quieting the animal give bromide of potash, in doses of from five to ten grains, two or three or four times a day, as demanded by the case. There is no better tonic in these cases than the pill of citrate of iron and quinine, one grain of each to a pill for small animals, two grains for larger ones, given three times a day. The tonic should not be given until after the more severe symptoms of irritation have been overcome.

The diet must be nutritious, chopped raw beef, milk, and eggs forming a good share of the food, which should be given in small quantities at a time, three times a day. If the symptoms come from the presence of intestinal worms, treatment for the removal of them should take the place of the cathartic. If from dentition the local irritating condition so caused should be properly attended to.

At the commencement of severe cases a warm bath for fifteen or twenty minutes every other day will often afford great relief; of course care must be taken to prevent the animal from getting chilled afterward.

Big Leg in Horses (Lymphangitis).

In this disorder of the lymph vessels, one or both of the hind legs will be found in the morning to have suddenly become considerably swollen over night.

Causes. — Irritation of lymphatic glands, that are in connection with some of the digestive organs, with extension of the trouble to the lymphatic vessels of the affected limb. It is a frequently seen disorder, more especially in animals that are overfed during short periods of idleness.

Symptoms. — If noticed early enough it will be seen that the horse has a shivering fit. As this subsides the animal becomes restless; fever follows and lameness begins to be shown in one or other of the hind legs. These various stages are quickly gone through with; the pulse is increased from seventy to, rarely, one hundred beats in the minute, and is hard and cord like. The breathing is hurried; in the severer cases it may number as many as from forty to fifty and be accompanied by a slight blowing noise. The temperature will be from one hundred and two to one hundred and four; the appetite is lost; there is great thirst; and the bowels are constipated. The swelling, which will first be noticed on the inner side of the leg along the course of the large vein, when pressure, if made as by the finger, will cause considerable pain, gradually extends to embrace the whole limb. The pain, heat, and tenderness in the part increases until the height of the fever is reached, and then remains stationary for a day or two, when it begins to slowly subside and continues so to do until it again reaches its natural size.

Unless care is taken to prevent it, the attacks are repeated at intervals until finally the animal is left with a chronic big leg.

Treatment. — The remedies are few, but they must be promptly and persistently employed. The whole limb is to be thoroughly and frequently bathed throughout its whole length with warm water. Considerable relief may be afforded by rubbing a little fluid extract of belladonna onto the skin over the course of the large vein on the inner side of the leg, between the times of bathing it, especially letting it remain on during the night. The bowels are to be thoroughly cleared out with a good dose of raw linseed oil and saleratus (bicarbonate of soda). Tincture of aconite root in doses of from twenty to twenty-five drops each, in two ounces of cold water, had better be given every two hours, for six times, during the oncoming of the fever. After the oil has operated, one ounce of saltpeter, given in the drinking water through each day, will aid in reducing the size of the leg.

Walking exercise is generally recommended, after the fever has passed, to help reduce the size of the limb; and while it is true that size can be *temporarily* lessened in this way, it is just as true that, by it, the *ultimate* period of recovery will be delayed; dry hand rubbing will give better results. The condition of chronic big leg is beyond cure generally; an attempt may be made by rubbing the leg once a day with a liniment made of equal parts of the soap liniment of the drug stores, and tincture of iodine. The iodide of potash in fairly good doses may be given internally, dissolved in water, three times a day.

Diseases of the Skin.

Of these there are so many different varieties, each one of which has such a number of subdivisions, that no more than a few of those most commonly met with can be described in this place. It may, however, be said that the greater number of skin diseases are secondary affections; and in attempting to cure them the treatment must be directed both to the removal of the internal cause, which is generally digestive in its nature, and the healing of the skin itself by local applications.

Nettle Rash (Urticaria) is characterized, in the horse, by the sudden appearance upon various parts of the skin of prominent, elastic patches of a roundish or oblong shape, varying in size, at their bases, from that of a nickel to, rarely, that of a half dollar.

Causes. — It is due to some disorder of the digestion, which may or may not be attended with some of the usual more noticeable signs of such disorder, as fever, diarrhoea or colic, all of which, however, if present, disappear as the eruption comes out.

Symptoms. — Whether some little digestive disturbance has been noticed or not, the eruption appears suddenly, beginning generally upon the neck and from there extending to cover nearly the entire body, at times; or it may be shown on one part of the skin, suddenly fade from there and appear on another part. The rash is sometimes accompanied by slight itching.

Treatment. — Give a mild purgative, as oil and soda, which had better be followed by the administration of a powder made of equal parts of cream of tartar and sulphur; the dose will be two teaspoonfuls, morning and night, mixed with the grain food; this should be continued for about one week. The horse may be used again as soon as the effects of the oil have passed off.

False Ringworm (Creeping Teeter; *Herpes circinatus*) is a more contagious affection consisting of one or more clusters of little blisters upon slightly inflamed patches of skin, which are often so shaped as to closely resemble true ringworm, which is a contagious disorder of the skin.

Causes are digestive.

Symptoms. — There is an eruption of little blisters upon inflamed patches of skin, which assume a circular form, the circles varying in size and sometimes including an area of healthy skin. The circles increase in size by their circumferences.

True Ringworm can be distinguished from the false by making a careful examination of the hair of the affected parts, which, in the contagious disorder, will be found to have about them a complete whitish

sheath, to break unevenly, to be ragged at their ends and have the appearance of having been eaten through; their broken stumps are much altered, bent, twisted, and lighter in color than the healthy hair.

Treatment of creeping tetter will be to regulate the diet under rules already mentioned. If there be much itching a dose of cathartic medicine had better be given; otherwise, one ounce of saltpeter, divided into three equal parts, one of which is to be given in the drinking water or on the food, three times daily, and continued for a week or ten days, as required, will generally be all that is necessary in the way of medicine. The irritation of the skin may be relieved and cured by the application of zinc ointment, or the ointment of the subacetate of lead, both of them as ordinarily prepared by the druggist. A simple dusting of the parts with powdered starch will oftentimes be all that is required in the way of local treatment.

Treatment of Contagious Ringworm. — Put the animal in a place where he will not come into contact with any others; be careful that nothing that touches or has been used upon the diseased animal comes in any way in contact with a healthy one. Feed lightly; give no exercise; and rub all of the diseased spots, once a day, with a mixture of one part of soap liniment to an equal part of the tincture of iodine. If, after a few days of this treatment, the skin does not seem to be improving, increase the strength of the solution by adding one-half part more of the iodine to the original mixture; if it is found that this increased amount of iodine is beginning to blister the parts, use it once every other day, only. If the disorder is not cured in this way within a week or ten days, a veterinarian had better be called in to see the case.

Eczema (often mistakenly called mange, red mange, etc.) is the most commonly seen skin disease in dogs; it also affects horses, cattle, and sheep, especially lambs. It is not contagious, but is very apt to recur.

Causes. — It is invariably due to dietetic errors, from over feeding, or from insufficient exercise, while eating food that is too heating in its nature; too much meat, indian meal, or dog biscuit, in dogs; indian and oil meal, in horses and cattle, or clover or buckwheat, in sheep or lambs that are being prepared for market.

Symptoms. — In the earlier stages there is an eruption of small blisters on various parts of the skin, closely crowded together and often running into each other, so as to form, on being broken, superficial moist excoriations, which in a short time afterward are dried into scabs and crusts. The heat of the skin, together with the irritation caused by the scabs, produces considerable itching, and the scratching and biting of the parts by dogs, and the rubbing of them against walls or similar objects, by the other animals, soon produce

excoriated patches of larger or smaller sizes upon the surface of the skin, from which oozes a yellowish fluid in small quantities, or even a small quantity of blood. These, when they occur, add considerably to the pain and itching; the animals scratch and rub more persistently and, unless the disorder is cured, the skin begins to thicken, the hair to fall off to a considerable extent, and the animal either grows rapidly thin and dies, after a time, from exhaustion, or else the malady takes upon itself a chronic form, which will be a long time in getting well, although it is curable. There are a considerable number of sub-varieties of eczema, but their differences do not need to be pointed out here.

Treatment. — The diet should at once be changed and regulated in accordance with the general rule: bread and milk with lime water for dogs; grass or roots with sound hay and a moderate feeding of oats and bran, with salt, to the others. In very mild cases these changes alone will often be all that is needed, especially if the animal is kept from scratching, biting, or rubbing the skin by, in dogs, muffling the hind feet and taping the mouth. More often the cases are obstinate and, for a time, will seem to resist any application that may be made to them. There is, perhaps, no disorder of the skin which has had a larger variety of drugs applied to its remedy than this one; this only goes to show the very untractable nature of the malady, at times; it does not necessitate the recommendation of a long list of remedies. The one remedy which can be relied upon to bring about a cure more often than any other one is the sulphur lotion. (See prescriptions.) This, if made as directed, will have a strength of one part of the sulphur to eight parts of water, and may be used in this strength on all animals that do not have large bleeding surfaces, as described, in connection with the trouble. On them, as well as on lap-dogs and lambs, when the skin is very delicate, the lotion should be reduced by adding two ounces of water to each four ounces of the lotion; if this is found, after being used for a day or two, not to cause too much irritation, its strength may be gradually increased until the original strength of the lotion is reached. The lotion should be *well* rubbed onto all of the diseased parts once daily, and the animal held still for ten or fifteen minutes or until the application has partially dried. If the disorder is freely spread over the body, the dog had better be clipped, or else the skin will not be sufficiently well reached. In instances when the eczema is confined to scattered, small, hairless, patches, wherein the itching is considerable, a solution or ointment of Ichthyol may often be used, once daily, with markedly good results. (See prescriptions.) If the case is one that is beyond the power of cure by one or the other of these remedies, a veterinarian had better be called.

Scratches in the Horse. — This is a well-known and troublesome disorder occurring on the skin, just below the fetlock and behind the pastern bone.

Causes. — The exciting cause is exposure of the parts to melting snow, mud, and water. While all horses are subject to it, there are some that never have it and a few others that are never without it. It is very much more apt to affect horses that show poor condition, due to bad digestion, than those that are in good health.

Symptoms. — The skin of the part first becomes very slightly swollen, hot to the touch, and in white-haired horses it will be seen to be quite red in color. After a very short time, if the animal is continued at work, small horizontal cracks appear and rapidly deepen, discharging at first a yellowish fluid which afterward becomes mixed with blood, and the legs begin to swell. The edges of the cracks widen and scabs appear upon them, which have a strong tendency to form a horn-like material and become a source of considerable irritation. The animal starts off lame, but after a little goes sound, until he is allowed to stand for a while, when he again goes lame for a little.

Treatment. — If noticed before the cracks have become at all large or deep, the animal should at once be taken from work, put into his stall, and have the parts poulticed with linseed, or oil meal, and warm water, for twelve hours; after which the zinc and lead lotion (see prescriptions) should be freely sopped onto the scratches and the horse allowed to remain idle until well. In the more advanced cases the treatment should be the same, excepting that the poulticing should be continued longer, and all of the scabs must be removed from the edges of the cracks every day, before the lotion is put on, until they cease to form; when zinc ointment may be used in place of the lotion. All cleaning of the parts, as from the poultice or other material, should be done with dry cloths; no water, or soap and water, should be used at any time. If the horse must be used, he should be poulticed over night, the sores carefully cleaned in the morning, and the zinc ointment should be well rubbed into the parts before he starts out. This will help matters considerably, but a cure will, probably, not be made until after he has been allowed to rest.

Burns and Scalds.

These happenings vary much as regards their local and constitutional effects, according to the degree and duration of the heat applied, the extent of the surface involved, the seat of the mischief, and the vital power of the animal at the time of injury, because great depression follows immediately after extensive injuries of the kind. They are conveniently divided into four classes:

First. The burn which produces simple inflammation of the skin may be *caused* by the momentary application of hot water or steam, by exposure to the rays of a strong fire, or by *momentary* light contact with a hot object or a very small flame.

Symptoms. — Unless the extent of surface injured be large, the constitutional disturbance is slight. The skin in white-haired animals is seen to be red; in all of them there is more or less removal of the hair, slight swelling, and severe pain, which lasts for some hours. In a few days the outer skin peels off and the hair gradually returns as if it had not been removed.

Treatment. — When anything is required, some heavy oil, as linseed, should be applied to the burned surface and that covered, if possible, with a sufficient layer of oiled cotton wool, which may be held in place by a light bandage. If the cotton cannot be held in place, wheat flour may be freely sprinkled over the newly oiled surface.

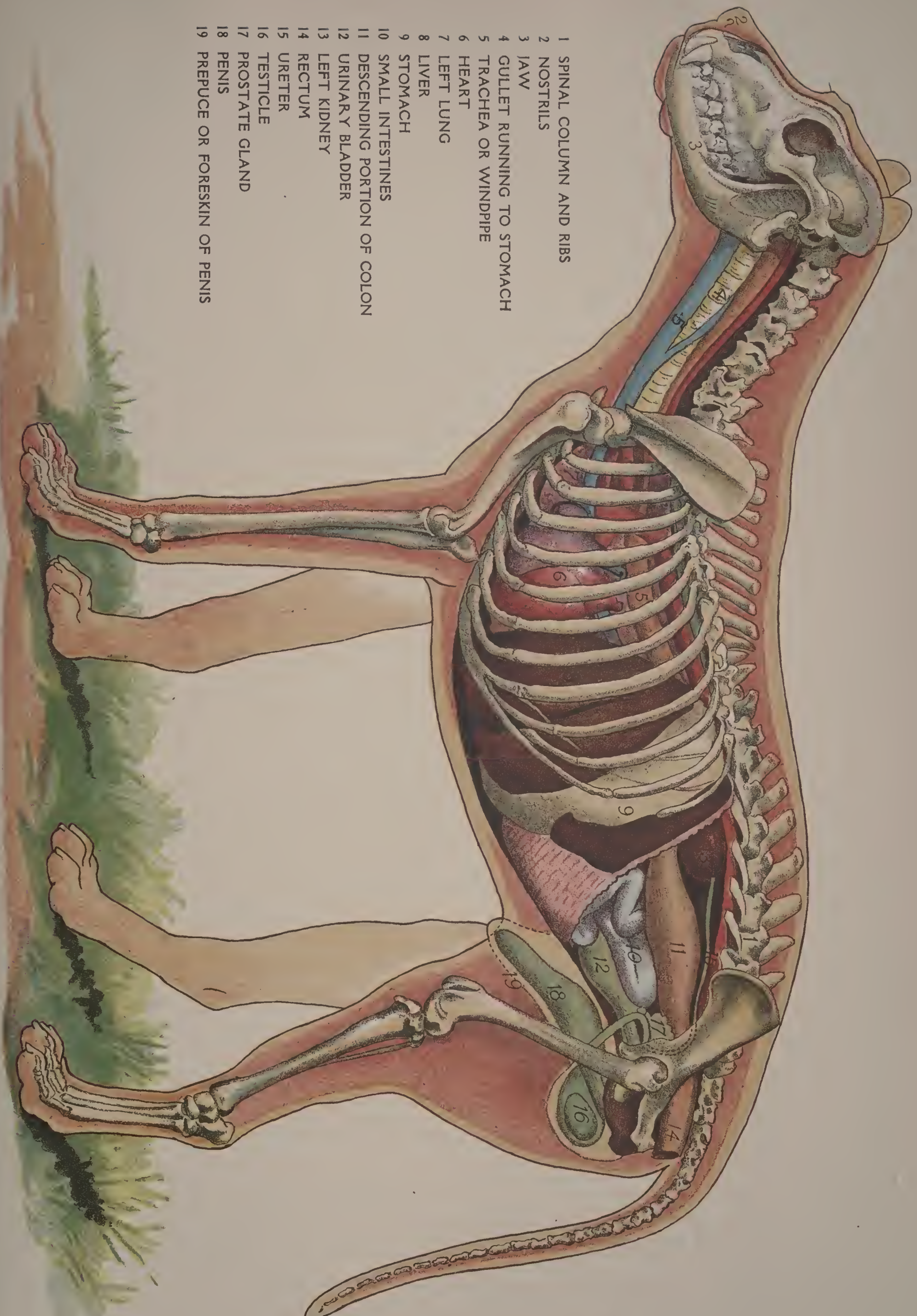
Second. Inflammation of the skin, with the production of blisters filled with serum, will be *caused* by a more severe burn.

Symptoms. — The skin is tense, hot, and swollen, soon becoming more or less covered with “water blisters” of varying sizes; and the pain is considerable. If the blisters get broken or their tops rubbed off, the surface underneath becomes exceedingly tender. In the more favorable cases the outer skin is slowly removed, and the part returned to health, no scar remains, and the hair grows again. In other instances, pus and sores will be formed on the injured surface of the true skin, when some of the hair will be permanently lost and a scar will remain. The constitutional symptoms are often severe and the depression considerable.

Treatment. — If the constitutional symptoms are markedly shown, it will be because the pain is great. This should be controlled, as far as possible, by the administration of moderate doses of the tincture of opium; while, if the depression is considerable, a little whiskey or brandy may be given. For the local application nothing will be better than the raw linseed oil, already recommended, or, if the blisters are broken, carron oil, which is a mixture of linseed oil and lime-water, in equal parts, had better be used. The use of wheat flour is not desirable because, if it becomes mixed with the contents of the blisters, a dirty, irritating paste is formed, which is difficult to remove, for a proper dressing of the sore surfaces. When the blisters are large and well filled with fluid they should be opened, great care being taken not to remove their coverings in the process. If pus is formed, the parts must be thoroughly cleansed once or twice a day with the solution of lysol.

Burns of greater severity than those already described had better be put under the care of a veterinarian as soon as possible, for they are likely to become quite complicated in their necessary treatment, both constitutional and local.

- 1 SPINAL COLUMN AND RIBS
- 2 NOSTRILS
- 3 JAW
- 4 GULLET RUNNING TO STOMACH
- 5 TRACHEA OR WINDPIPE
- 6 HEART
- 7 LEFT LUNG
- 8 LIVER
- 9 STOMACH
- 10 SMALL INTESTINES
- 11 DESCENDING PORTION OF COLON
- 12 URINARY BLADDER
- 13 LEFT KIDNEY
- 14 RECTUM
- 15 URETER
- 16 TESTICLE
- 17 PROSTATE GLAND
- 18 PENIS
- 19 PREPUCE OR FORESKIN OF PENIS



MALE DOG

SHOWING INTERNAL ORGANS

Burns from Acids and Strong Alkalies sometimes occur as the result of accident. The *treatment* of them should be as for any burn of equal importance, *excepting*, if acid has caused the harm, the part should be freely bathed with an alkaline solution, as, saleratus one heaping tablespoonful to each quart of water. Or if the burn is from a strong alkali, as lime, the parts should be bathed with some weak acid solution, as a cupful of vinegar to each quart of water. These baths are to be given only once, and they will be productive of no good whatever unless they can be used almost immediately after the accident has taken place.

Canker of the Ear in Dogs.

Causes. — The entrance of foreign bodies into the ears, bites from other dogs, but much more frequently than either of these, the same set of causes that operate in bringing on an attack of eczema.

Symptoms. — The early approach of canker is indicated by frequent shaking of the head, or holding it to one side, or careful scratching of one or both ears, accompanied by a low, painful sounding whine. If now an examination of the inner side of the ear be made, the skin will be found red, especially down among the folds, and that some of these are swollen. If these earlier symptoms are neglected the pain will increase, the redness become more intense, the folds more swollen, and deposits of red or black thick matter will be found to have taken place in the various hollows between the folds, more especially the deeper ones and at the bottom of the canal. Should it happen that up to this time the ear had not had treatment, little sores will begin to appear upon various parts of the skin, again, more particularly the deeper ones.

Treatment. — The ear should be carefully and thoroughly examined and any collections of foreign matter removed. This should be carefully done by using a small piece of wood, like a toothpick, which has a little absorbent cotton wrapped around one end; the cotton must be changed each time that it becomes soiled. The ear having thus been cleaned *thoroughly*, the use, twice a day, of a little of a solution of the sulphate of zinc, ten grains to one ounce of water, will generally be all that is required. The ear should be cleansed once daily for as long as is necessary.

External Canker or Rodent Ulceration of the Ear.

Causes. — The disorder attacks dogs having pendulous ears, as pointers, setters, etc., and of these, more commonly those, that from the habit of shaking the head considerably, from any cause, or those whose instincts take them through underbrush and among briars

where the parts may receive some small scratches, which may be followed by the ulcer.

Symptoms. — There appears at first, at the pendulent tip of the ear, a small wound, abrasion, or bruise that is thought to be of no consequence. After a little time, however, the animal commences to shake his head, flapping his ears violently; the ear swells about the little wound, which, if closely examined, will be found covered with a thin, dry, brown scale, having minute cracks upon it and being hot and somewhat painful upon pressure. After a little the scab will be removed, disclosing an indolent, ulcerated looking surface covered with a small quantity of a greenish, unhealthy looking pus. This ulcer will extend itself more or less rapidly as the dog shakes the head, until the ear is eaten through at the tip, the sore extends by its margins and shows no tendency to heal.

Treatment. — Nothing will be of avail until the dog can be made to stop the violent flapping of the ears, and this cannot be accomplished without the use of the so-called "canker cap." This cap may be made of close net or a piece of cotton cloth, which should be six or eight inches in width and sufficiently long to reach round the head and meet under the jaws. Along each side of it must be a running piece of tape and a shorter piece sewed at the center of each of the ends. By means of these the cap may be drawn tightly over the head, above the eyes, and likewise round the neck, behind the ears, so as to confine them perfectly. The cap being ready for use, the ulcer is to be thoroughly cleansed with the lysol solution, and all small pieces of the scale removed as soon as possible. The whole surface is then to be covered with a *small* quantity of powdered iodoform, the ears placed one above the other on the top of the head, and the cap adjusted. The cap must be kept on for some time after the other treatment is no longer necessary, or else the ulcer will return.

Rickets

is a constitutional disease characterized by the softening and bending of some of the bones of the body and extremities, superadded to many of those conditions that result from indigestion. There is general debility, softness of muscles, and a sluggish state of the nervous system. The malady is essentially one of early life and is seen in *foals* and *calves*, but particularly in *puppies* of all breeds, large and small.

Causes. — Anything which induces imperfect digestion of food and impaired general nutrition. Hence it is seen in calves which are not allowed to suckle their mothers; in foals when the dams are taken to work during the day and the foals allowed to suckle only morning and night or, at most, three times a day; conditions which always create a tendency to eat to over fulness of the stomach, as a

result of which the milk passes through them in an ill-digested, curdy condition, and the young animal is partially starved, both by the imperfect assimilation of the food and by the weakening of the digestive powers, which is gradually brought about. In addition to this improper method of feeding, the constant breathing of impure air, living in damp, dark, or cold places, will induce rickets, and here probably will be found the reason for so many more puppies being affected with rickets after a winter rearing, than among those that have been raised in the summer and sunshine, all other conditions being equal.

Symptoms. — It will first be noticed that the young animal shows an undesirable fulness of the stomach, just after feeding, which is soon followed by diarrhoea, more quickly recognized in calves and foals than in puppies; general debility and loss of flesh, with slight but comparatively painless swelling about the joints of the limbs, especially the wrists in puppies. The change from apparent health to disease is, as a rule, so gradual that the animal is not considered to be sick enough for special treatment until, after the lapse of some little time, the bent condition of the bones of the legs is suddenly realized to exist to some considerable degree.

In foals and calves the bones from the knees to the ankle are first to give way, the curvatures being outward; thus the knees are thrown outward and the toes drawn inward. At the same time the extremities of the bones at the joints become enlarged, hot and painful, causing so much lameness that the animal merely touches the toes of the affected limbs to the ground. When the bones of the hind extremities are bent, the toes are turned outward, the hocks inward, the points of them almost touching each other; and the cannon bones bent at their middle, inward and backward.

In puppies the bones which bend soonest are those of the arm, at the lower third, giving the animal a dwarf-like appearance; he stands with his front legs wide apart and walks with a peculiar strut, throwing the weight of his body from one leg to the other as he walks, the breast-bone, in some cases, almost touching the ground. The elbows and wrists are disproportionately large and somewhat hot and painful upon pressure. In all the animals, after a time, the breathing is quickened, the pulse becomes frequent and feeble, the appetite capricious, and the diarrhoea offensive in smell. Recovery takes place slowly at first, rapidly afterward. The earliest signs of improvement are a better condition of the excretions; the appetite improves; the flesh is firmer; growth, which has been at a standstill, proceeds rapidly; healthy bone material is actively deposited at the parts where the curvature has been the greatest; the bones become healthy; and there is left of the disorder only more or less deformity, by curvature, which will remain throughout the life of the animal.

Treatment. — Rickets is always preventable if its causes are not allowed to exist. When present, the first attention must be to regu-

late the digestion, under the general rules already given, and by allowing small quantities of the proper food, for young animals, at frequent intervals. The medicines to be given are iron, quinine, cod-liver oil, and bone meal, in the quantities required by the various animals, and the differing sizes and ages of the puppies. (See dose table.) The pill of citrate of iron and quinine may conveniently be given to dogs. The bone meal used should be that which is carefully prepared, ground very fine, and obtainable from the druggist only. If the dose of cod-liver oil used is too large, it will cause purgation and must be made smaller; if constipation is troublesome the dose of the oil can be increased.

Splints of very thin wood in the larger animals, or pasteboard in puppies, are often used with considerable advantage, during the beginning of treatment, if properly applied and so arranged that they do not chafe the skin. They should, of course, be put on the inner side of the curvature.

Splint

is the name given to a small bony growth generally situated upon the inner side of the front cannon bones of horses; while it may occur anywhere between the knee and the fetlock, it is usually seen about midway between these two joints.

Causes. — Anything which may cause inflammation of the covering of the bone, as a blow from the other foot, in traveling; in animals under five years of age, from concussion in trotting or galloping rapidly upon a hard road, etc.

Symptoms. — The bony enlargement is both easily seen and felt upon some portion of the parts described. Unless the splint is in close connection with the knee, or being newly formed, or recently struck, as by the other forward foot, there will be no lameness. Splint lameness is peculiar in that the horse, with it, will trot *exceedingly* lame, and walk nearly, if not quite, sound, the two exhibitions of lameness being out of all proportion to each other; besides which the further he goes the lamer he gets. Both of these symptoms *may* be shown before the enlargement appears, but if the coming splint be its cause, close examination will show heat and tenderness upon pressure, at the seat of the coming enlargement. Unless lameness is present, or the growth is in close connection with the knee joint, splint is not a cause of unsoundness.

Treatment. — When the growth is first coming, or whenever, from interfering, etc., it is hot and tender, rest the horse and apply cold water bandages frequently, until all of the heat and soreness have passed away. Afterward an attempt may be made to "harden it down" by the use of a blistering ointment made of red iodide of mercury, two drams, well mixed with one ounce of lard. A *very little*

of this ointment is to be rubbed lightly over the splint, once a day, until the parts become sore, when further application of it should be stopped and the part allowed to dry; when the crust that will be formed is perfectly dry, a *very little* sweet oil or lard should be put upon it two or three times a week until it comes off. The whole process will take about three weeks. The hair should be clipped off before the ointment is used.

Diseased Conditions of Joints

It will not be possible to intelligently describe the disorders coming under this head, unless there is a fairly clear idea of the structure of joints. A joint is a union, by means of *ligaments*, of two or more bones the opposing *surfaces* of which, so shaped as to be perfectly fitted into one another, are covered by *cartilage* and enclosed within a capsular ligament, forming a closed cavity which is lined throughout by a delicate membrane that, from its function, which is the secretion of the joint-oil or *synovia*, is called the *synovial membrane*. Any one of these four tissues may be injured and become inflamed, but their liability to inflammation is in direct proportion to the amount of blood that they naturally contain, and that is in the following order: synovial membrane, bone, ligament, and cartilage.

The Causes which operate to produce diseases of the joints are very various; they may be *local*, as from blows, strains, and wounds; *constitutional*, when certain conditions which modify the vital processes in various other tissues of the body, but which are especially prone to locate in the joints, are met with, as in rheumatism, tuberculosis, etc.; or there may be a modification of one by the other, as, when a predisposition to disease of the joints is hereditary, a slight injury will induce a certain grave disorder which, in an animal without such taint, would be of no great consequence.

Bog Spavin is a soft, fluctuating swelling situated upon the inside front of the hock joint.

Causes. — A chronic synovitis, which has been due to overwork of the limb or to some slight injury of it, as strain, twist, etc., as a result of which a large amount of synovial fluid has been poured out into the cavity of the capsular ligament, so creating a dropsy of the joint, which has little, if any, tendency to become absorbed and disappear.

Symptoms. — There may be, at first, a slight lameness which, when present, is due to the cause of the synovitis; this soon passes away, with rest, and there is left no more than the swelling described. This swelling usually remains of about the same size as at first shown, throughout life; occasionally it may be induced to disappear permanently, by treatment; at other times it rarely happens that it

continues to grow until it reaches an immense size, in spite of all treatment, but this is usually in horses of lowered general vitality. When bog spavin is present, without lameness, it is a blemish, not an unsoundness, because, of itself, it is not a cause of lameness and, when of moderate size, does not interfere with the animal's work.

Treatment, as has already been intimated, is not often followed by the permanent disappearance of the enlargement. When it is first shown it may be painted with pure tincture of iodine once a day until it becomes sore; or blistered with the ointment of red iodide of mercury, two drams to the ounce of lard, applied as recommended for splint. The animal must not be allowed exercise during this treatment, under which the swelling is often removed; but it will nearly always return as soon as the horse is again put to work.

Thoroughpin. — This name is given to a dropsical swelling, similar to that of bog spavin, with which it is often associated, situated just above the point of the hock, under the large tendon which comes down the back of the leg and passes over the point of the hock.

Causes. — It comes as the result of a low form of inflammation of a synovial membrane there situated, the natural secretion of which is for the purpose of lubricating the gliding of the tendon in its sheath, at the part. The inflammation results from overwork of the tendon. It rarely causes lameness, excepting that which may be due to some little strain of the tendon, which, when present, passes off after a few days' rest, leaving a dropsical swelling which extends from side to side of the leg and is of larger or smaller size. A thoroughpin is not an unsoundness, unless the animal is going lame from it; which will be, if at all, when it first makes its appearance, and then the lameness is due to injury of the tendon.

Treatment will be the same as for bog spavin; with the same outlook as to permanent loss of the enlargement.

Capped Hock is a serous swelling of larger or smaller size situated directly upon the point of the hock, under the skin, which is very thick at the part. It is seen in cattle as well as horses.

Causes. — It is the result of a blow, or more or less constant pressure upon the part. Horses that kick the sides of the stall are very apt to have it, as well as those that meet with accidents as a result of which the parts are injured. In cattle particularly, and rarely in horses, from lying upon a hard floor in such a position as to press the points of the hock upon it.

Symptoms. — There is a larger or smaller swelling, which, when it first comes, evidently contains fluid, is hot, and tender to the touch; there may or may not be lameness, depending entirely upon the importance of the injury that has caused the enlargement.

Treatment. — Prevent any repetition of the cause by padding the sides of the stalls, if necessary. If the injury be recent and the part hot, slip an old overall leg up over the leg of the animal, tying it *lightly* around the limb just below and above the joint, thus leaving a sort of pocket around the joint. Fill this pocket with old sponge, cotton waste, or similar material, and keep it constantly wet with ice water until all heat and tenderness have passed off. If any enlargement remains, blister with the ointment of red iodide of mercury, as directed for splint, or, if preferred, paint the part daily with pure tincture of iodine until it becomes sore, then after a few days paint again, as long as necessary. The process of removing the enlargement, if it becomes at all chronic, is a slow one and not always entirely successful. The horse can be used during treatment, but great care must be taken to prevent *any* addition to the cause. It is not an unsoundness.

Curb. — By this term is meant a hard swelling which appears at a point some three or four inches below the point of the hock, directly upon the back of the leg.

Cause. — It is a strain of a ligament (calcaneo-cuboid) which serves to bind the lower extremity of "os calcis" to other small bones of the hock joint. The cause of the strain is anything which tends to pull the point of the hock too strongly forward; as rearing, pulling heavy loads up hill, slipping, as in backing, with the hind legs well under the body, jumping over high objects, etc.

Symptoms. — Upon examining the hind leg in profile it will be seen that, at the point named, there is an outward bulging varying in size from a hard, small nodule to a large, diffuse swelling, which may possibly, if the strain be a very recent one, be somewhat puffy, hot, and tender to the touch. If lameness be present, which depends rather upon the age of the curb than its size, it is characterized by difficulty in straightening the leg backward.

Treatment. — Rest the horse, put on a shoe having no toe calk, and with heel calks about one and one-quarter inches long, measuring from the foot surface of the shoe. When the injury is recent, or the swelling at all puffy and hot, it should be cooled as recommended for capped hock. After the inflammation has been thus removed the parts may be either blistered with the red iodide of mercury, as in splint, or fired; which operation will necessitate the services of a veterinarian. In some of the less important cases, or if the horse can be spared from work for some time, the blister will give good results. In very severe curb deep line firing is the only measure to be thoroughly relied upon. When put to work these recovered horses should be shod with fairly high heel calks, without any toe, for some little time.

If the injury to the hock be entirely comprehended in the curb,

there is no doubt that the animal may be restored to soundness, so far as lameness goes, although the enlargement will, in all likelihood, remain. Older horses, those in which the bones have become thoroughly hardened, permanently recover much more quickly than do those under five years of age; among which there is a strong tendency to recurrence of the lameness, upon work, until the bones have age enough to harden them, that is, until they are seven years old. An old, hard curb, if the horse is not going lame, is a bad blemish, but not an unsoundness.

Bone Spavin is a disease of the small bones of the hock, through which a growth of new bony material, of larger or smaller size, after the nature of a splint, is deposited on the face of the joint, on its inner side, a little more than half-way down between the hinge of the joint and the head of the cannon bone, which last may also be involved. The term refers to the enlargement only. When a horse is lame in this joint, and no bony enlargement is discoverable, he is said to be suffering from hock-joint lameness. Some horses show a bony enlargement at this point in one or both legs, and no lameness exists. Such animals are said to have coarse hocks, and while one is always expecting that such an animal will commence to go lame at almost any time, many of them go through a life of work without ever showing lameness or limited action there.

Causes are predisposing and exciting. A predisposition to spavin may be hereditary or due to some peculiarity in the conformation of the leg, or joint, as in a "sickle-hocked" horse, etc.; there is no doubt as to the hereditary tendency.

The exciting causes are anything that may set up an inflammation of the synovial membrane, as strains or local injuries; or which may give rise to disease of the bones or its covering, the periosteum, as concussion, that is, too much fast work at either galloping or running, or anything that overworks the joint.

Symptoms. — There is a hard enlargement upon the seat of spavin, which may be so large as to be easily seen from quite a little distance, when standing directly behind the horse, or so small as to need the most careful examination by an expert for its detection. The lameness is always shown when the unexercised horse begins to trot, and is somewhat peculiar in that it generally passes entirely away after the animal has been driven a distance varying from a few rods to a mile or two. In some instances the lameness is not lost, or it may even be increased, by exercise; this is when the cartilages of the small bones, the action of which is simply to glide upon one another, have become diseased, allowing their sore surfaces to rub together. The method of using the limb is peculiar in that the spavined horse invariably starts off and goes upon his toe, so long as the lameness lasts; and if the shoe of one of these animals is examined it will be

seen that its toe is nearly worn out, while its heels have been but little worn, if the shoe has been upon the foot for some time and the horse has been regularly worked. Another peculiarity of the lameness is that when the leg is lifted from the ground the hock moves with a *little* spasmodic jerk that remotely suggests a string-halt action. In some cases the pain caused by work is so great that the animal loses flesh rapidly and doesn't eat well.

Treatment. — The only reliable method of cure is by deep point firing and absolute rest for from eight to twelve weeks. Occasionally a severe blistering, with the Spanish fly ointment, or some liquid blister, many of which are sold under the name of "spavin cure," have been known to bring about the desired result; but they are not to be relied upon. There are one or two good operations that are practised by veterinaries, the description of which will not be necessary in this place.

Young animals recover much more often than older ones; but in a large practice the percentages of recovery amount to about three quarters of all the cases *fired*, taking them as they come, favorable and unfavorable, together.

All spavined horses, while at work, should have the toes well cut back, the shoe fairly long in the heel, with the heel calks as long as can safely be used.

Ringbone, often called Clingfast, is another one of the disorders, as a result of which deposits of new bone are made round about the diseased parts, which are one or the other of the pastern bones, on either the front or hind legs, more commonly, perhaps, on the hind. The term is properly applied to any such enlargement, whether it forms a "ring around the bone" or consists simply in a small prominence upon one part of the bone only. If the enlargement is above the middle of *os suffraginis* (see skeleton) it is described as a *false* ringbone and is of the nature of "splint"; this is not an unsoundness, if the animal trots free from lameness. In true ringbone the bony deposits involve joints of large movement, because of which the disorder is generally incurable.

Causes. — These are predisposing and exciting. Among the predisposing causes are hereditary taint, long sloping pasterns, and rheumatism. That breeding from ringboned parents has long been looked upon as a fruitful source of ringbone in the young there is no possible doubt. The exciting causes may be said to consist in any acts or efforts of speed or strength that will produce an over-concussion to the pastern bones; strains of the parts, injuries as from blows, pricks with a fork-tine, or wounds of any sort that can give rise to inflammation of the bones or synovial membranes.

Symptoms. — Lameness occasionally precedes any recognizable deposits of new bone material; and the lameness is peculiar in that,

if in a fore limb, the horse puts his heel to the ground first; if in a hind one the toe is the first to touch the ground. Later the pastern, just above the coronet, will be seen to be larger than its fellow, with or without heat or tenderness to the touch; and if the animal is trotted he will show more or less lameness, evidently referable to the region of the foot. Not unfrequently a horse is seen with a hard enlargement upon the seat of ringbone, that will show no lameness. Notwithstanding that the writer has known several of these instances in which the animals have continued to go sound for a long time, his practice has always been to reject as unsound any horse having a bony enlargement upon the seat of ringbone and, on the whole, the practise has been proved to be good.

Treatment. — Many operations, some of them, as stripping the sole, of a most cruel and useless nature, have been from time to time practised for the cure of ringbone, without success. The fact is that the disorder is generally incurable; occasionally, repeated blisterings with the red iodide of mercury, in young animals, or repeated deep point firing, with Spanish fly blisters, in the older ones, with long rest, will be followed by loss of the lameness and ability to work sound. So, taken all in all, it will probably be as well to keep at work a horse that is no more than moderately lame from ringbone; his chances of recovery are certainly none the less. In shoeing such horses for work, those that put the heel to the ground first should have a thin, wide-heeled bar shoe put upon the foot; those that go upon the toes should have high heel calks and no toe calk upon the shoes.

Diseases of the Foot.

Disease of the Navicular Joint, Coffin Joint Lameness, Grogginess, Chest Founder, etc., are names given to a disorder of the navicular joint, which is made up between the navicular bone and the tendon which picks up the heel of the foot; the cartilages and synovial membranes being situated at points where this bone is against the pedal bone, but much more extensively on the surface of it, over which the tendon slides, where there is an unusually large joint oil apparatus. It is the most commonly seen disease of the fore feet in horses that are used for driving or running purposes, and one of the most incurable of them, when firmly seated.

Causes. — The trouble always commences as an inflammation of the synovial membrane between the bone and the tendon; if this is unrelieved, and it is the only stage of the disorder which it is possible to cure, the later effects of synovitis follow in more or less rapid succession; the bone is roughened at its edges, the cartilage is more or less destroyed, the center of the bone begins to decay, and the whole bone may finally be broken across through its short middle line. If the roughness of the edges, above spoken of, becomes sufficiently

developed, the tendon, in gliding over it, is roughened and an inflammation is set up which finally results in an adhesion of the tendon to the bone.

The disorder is rarely or never met with in horses having large, round feet with low heels, but attacks those of the opposite formation, that is, with high heels and a good length from toe to heel. It is common knowledge that the low-heeled foot carries with it a large frog and never easily becomes hard; just as well known is the fact that the frog in the high-heeled foot tends to grow small, the sole to fill up with a quantity of hard, dry horn, and the walls at the heels so dry and hard that they actually contract upon themselves until the foot looks, and is, much more narrow than it should be across the heels and quarters. It will easily be understood, then, that an animal with feet as hard as a stone, in which the horn has lost all of its elasticity, both in the wall and sole, and in which the frog has become more or less shriveled and hard, if trotted upon a hard road, will receive much more concussion to the foot than if that member were in its normal elastic condition. And when it is realized how delicate and susceptible to injury synovial membranes are, there should be no doubt that the one cause of navicular disease, aside from absolute wounds to the parts, as from nail prick, is concussion; received under the conditions pointed out and communicated to the synovial membrane. There is no doubt whatever that colts bred from parents, especially mares, having this trouble, are strongly predisposed to contract it upon slight application of the general cause.

Symptoms. — Lameness may be the first thing to attract attention, although, at times, an earlier sign will be a more or less constant "pointing" of the foot while standing in the stall or elsewhere, the horse, however, doing his work "sound." Lameness may make its appearance suddenly, in which instances it is often intense from the first; as, a horse may leave the stable, for work, in his usual state of soundness but, while out, drop suddenly lame. At the moment it is thought that he has trodden upon, or picked up, a stone; upon examination, however, no stone is found, nor is there any apparent cause of lameness in either the foot or the leg; after a little further time he is found to be suffering from this lameness.

More generally, however, the lameness is gradual in its development, insidious and stealthy even. At first the owner imagines that his horse is going lame; while driving him he "wonders" if he is not now and then taking a lame step, or whether it is his fancy that he does so; the leg and foot are examined, nothing is found to be wrong, and no more is thought of the matter, especially as, upon the next slight drive, the animal shows no lameness whatever. Soon, a longer or more speedy drive is taken, the suspected lameness returns and assumes more of the form of reality and does not pass off so quickly. If, even now, the animal has a few days' rest the lameness is not

unlikely to be lost a second time or, at all events, it is so slight that little or no heed is taken of the "favoring" that remains. In this way days or weeks are allowed to pass before the obstinate character of the trouble is realized.

The foot may or may not feel hot to the touch; the hoof will be hard, and if sharply tapped with a hammer, on the sole, under the joint, some evidences of pain may be discovered. Further than this, the examination must be in skilled hands; it consists of exclusion of other causes of lameness, by further examination of the foot; the injection of cocaine to numb the foot, and a trot at the halter to see whether or not the lameness still remains.

After an animal has become chronically lame in both feet, from this trouble, the legs, in trotting, are pushed straight out without very much bending of the knee or action of the muscles in the region of the shoulders and arms, so that the feet may come to the ground as lightly as possible and save pain. A horse in this condition scarcely ever "nods," as from lameness, but with the action described, and the soreness about equal in both feet, he goes along pretty well for a longer or shorter time, sometimes for years. It is this limited action of the muscles of the shoulders and arms that has given rise to the terms *chest founder* and *sweeny* of the shoulder, occasionally heard; the fact being that because of the lessened use of the muscles an atrophy or shrinking in size of them takes place, which makes the breast look as if it were sunken in; and the shoulders thin, flat, and drawn.

Treatment. — There is no hope of full recovery unless the case is put under treatment for synovitis when the trouble is first shown. The shoes are to be removed, the sole of the foot, including the bars, pared out, until the remaining horn is quite flexible under pressure from the thumbs, the heels well opened; and the animal allowed to stand, with both feet in a tub of ice water, up to the fetlock joints. After this "soaking" has been continued, during the daytime, for five or six days, the coronets are to be thoroughly blistered with Spanish fly and the horse allowed absolute rest in a stall or box for fully six weeks. The horse will go sound after the soaking, but if he is allowed to go to work without taking the long rest prescribed, the synovitis will return.

There is but one surgical operation that should be allowed upon the feet of these horses, and that is the one that is commonly known as "nerving," in which a section of the sensory nerve supplying the foot is cut out; two cuts for each foot are required. This operation may well be likened, in its results, to that of "killing the nerve" in a tooth, commonly practised by dentists; the disease is not cured, but remains in the foot and progresses, but with, perhaps, less rapidity. There is no loss of action, because the nerve that is destroyed is one purely of sensation; the nerves governing the action of the muscles, which

are all situated above the knee, are in no wise interfered with. The writer has known many instances in which comparatively worthless horses have been made, in this way, to go perfectly sound for years. On the other hand it occasionally happens that a form of degeneration follows the operation, in which cases the hoof is sloughed off and the animal has to be killed; there is no pain accompanying this loss of the hoof because the foot has already been made "numb" by the removal of the nerve. The operation should not be attempted until the foot and leg, up to the knee, have been made thoroughly cool by the application of a cold-water bath to the feet and cold, wet bandages to the legs, for two or three days immediately preceding it.

Side Bone. — This term is used to indicate the presence of a hard, bony bunch, situated at the extreme heel of the foot, just above the hoof, at the point where it begins to make the turn toward the frog.

Causes. — The bunches appear because the cartilaginous wings of the pedal bone, which come up to give elasticity to this part of the foot, have been attacked by an inflammation which has changed them into bone. They are generally, but not always, found in low-heeled feet; and the cause of the inflammation is usually due to concussion coming through heavy, high heel-calks; they may also be the result of blows or wounds to the part.

Symptoms. — Lameness may or may not be present; the bunch is easily felt, and can oftentimes be seen, when the horse stands with the feet firmly placed on the ground. If the foot is lifted and the side bone taken between the finger and thumb it will be found to be entirely rigid and of larger or smaller size. There may be but one on a foot, more commonly there are two; all the feet may be affected, but it is much more frequently met with in the front ones. When lame, the horse puts his toe to the ground first, which gives him a short and stilty action.

There has been considerable discussion as to whether or not horses having side-bone, and going sound, *were* sound. It may well be determined that they are all *unsound*, but horses that are to be used at a walking pace only, will often keep free from lameness and do good serviceable work.

Treatment. — Rest; ice water swabs around the coronets for three or four days, to be followed by a good Spanish fly blister, and the rest continued for three or four weeks. The feet are to be shod with a wide webbed bar shoe which is no thicker at the heels than at the toe. If calks are needed they may be welded onto the sides and toe, leaving the heels under the seat of the trouble, uncalked. In horses to be used for driving or any fast work, there is no way in which the lameness can be permanently removed.

Sand=Crack or Toe=Crack. — This term is used to describe a split in the horn of the hoof of the hind feet, in by far the greater number of instances; it is very seldom seen in the front ones.

Causes. — The usual victim of sand-crack is the heavy work horse, although it is not confined to them. Animals with short, upright pasterns, with clubby, prominent hoofs, are considered to be predisposed to the accident; which is caused by the persistent use of heavy toe calks upon the shoes.

Symptoms. — There is a crack of the hoof directly at the middle of the toe; it may extend from the hair to the shoe, or only for a short distance from the shoe upward. It generally, when extending for the entire length, penetrates the whole thickness of the horn; the shorter cracks are not as likely to do so. When extending through the horn to the soft structures under it, the constant opening and closing of the crack, as the horse throws his weight upon the foot and then lifts it from the ground, occasionally pinches them at a point just below the coronet, causing a sore which sometimes discharges blood and pus in very small quantities, and always produces great lameness, the seat of which can easily be found by pressing the coronet at the top of the crack. Such an animal, in walking, will first put the heel to the ground.

Treatment. — If there is no lameness and it is desired to get rid of the crack, the shoes should be replaced by those having side calks instead of a toe calk; next a cut must be made, with a sharp drawing knife, parallel to and just below the coronet, extending for about three quarters of an inch on each side of the crack; from each end of this cut another is to be made in a line downward, which will meet the crack at about one and one-half inches below the coronet, thus cutting a triangle in the horn. All of the hoof between these cuts is to be carefully removed down to the soft tissues below it, leaving all of the edges and corners square and good.

If lameness with more or less festering of the soft parts is present, the same operation is to be made through the hoof and the sore poulticed for a day or two with flaxseed or oil meal; when all discharges have ceased, a small piece of oakum, saturated with oil of cade, should be put on and held in place by a bandage, until new solid horn begins to form on the surface at the bottom of the part cut away; this dressing is to be done once a day. The horse should be allowed to stand in the stall until the new surface horn is seen to be well started down from the coronet, when he may be shod, as directed, and put to rather slow work, at first.

Quarter=Crack. — In this the condition of affairs is much the same as in sand-crack, excepting for its situation upon the hoof, which is somewhat back of midway between the toe and the heel, at what is called the "quarter" of the foot.

Causes. — There is no doubt that this crack occurs more frequently in hoofs which are disposed to easily become dry, hard, and brittle, especially those having thin, shelly walls; and in which the horn-secreting structures are in a more or less state of chronic inflammation, with a tendency to contraction at the heels. The crack may also follow a slight wound of the coronet. Shoes that are set so that they do not press evenly upon the wall of the hoofs from the quarters to the heels, that, as the blacksmiths say, have a “spring” at the heel, give rise to the crack in brittle, weak hoofs.

Symptoms. — The crack generally appears suddenly, although, from its situation, which is generally upon the inside quarter, it may not be noticed for some time, unless it happens to give rise to lameness. It generally first takes place through the horn at the coronet, and from there extends, more or less quickly, in a slanting direction forward, down to the shoe. The crack may, and not unusually does, extend through the thickness of the horn, and produces soreness of the sensitive tissues beneath it, with the same results as already described in toe-crack.

Treatment. — In some slight cases the longitudinal cut made across the upper end of the crack will be all that is required. The other cases must be treated as already described, at length, for toe-crack.

False Quarter. — The horny outer wall or crust or enamel of the hoof, being secreted from the coronary substance, it naturally follows that when a part of this substance is destroyed, as by direct injury, the part of the wall below this destroyed portion is no longer supplied with horn from above; a deficiency which causes a permanent chasm or fissure, of larger or smaller size, in the wall, to which this name has been given.

Causes. — Anything which happens to absolutely destroy the integrity of the coronary substance, as a wound inflicted by the heel calk of the opposite shoe; the toe of one of the hind shoes; falls when there is considerable struggling while down, as when a horse is cast in his stall, etc.

Symptoms. — It may occur at any part of the coronet, but is more commonly found at the inside quarter or a little behind that, toward the heel. It differs materially from quarter-crack in appearance. There is the wound or scar with loss of substance at the top; the fissure is much wider at its base, and contains a very soft horn at its bottom, which is secreted by the soft tissues lying immediately beneath.

Treatment. — There is no cure. If lameness is present a three-quarter shoe must be applied to the foot and worn constantly; a bar shoe will not answer the purpose in severe cases. To shoe properly,

a full shoe with a moderately wide web, and of good substance from the ground to the hoof surfaces, should be made and fitted; after this is done the heel of the shoe is to be cut off at a point which will leave the entire part of the hoof, under the fissure, and from there to the heel, entirely unshod. There need be no fear of bad results to the unshod portion of the hoof; the writer has known a heavy steam fire-engine horse, treated in this way, to do his galloping work on stone pavements for years with entire satisfaction, while without it he was so lame as to be useless, in his peculiar work. False-quarter is an unsoundness.

Corn. — This term is undoubtedly borrowed from human practice, and is unfortunate in that it may cause a mistaken idea as to the real nature of the disorder. There is no connection whatever in the nature of the two. In horses, corn is simply a bruise of the sensitive sole of the foot, at the extreme angle of the heel, generally on the inner side, rarely upon the outer, of a front foot, as a result of which some little blood oozes into the pores of the horn, staining them red at the point; or, the bruise being long continued or very severe, pus may form in the part, in which case it is called a suppurating corn.

Causes. — Corns are found in all kinds of feet, but perhaps the large round ones, with low heels and thin walls, are more especially subject to them. The trouble arises from pressure by the shoe upon the sole, at its extreme end at the heel. It is not always, necessarily, due to bad shoeing. The wall, at the part, may be broken or worn so that it is not sufficiently strong to hold the shoe away from the sole, as it should do. The old horn may not have been removed from the sole at the point, and when this happens the sole is sure to get pressure from the shoe; or the shoe may be so badly made and put on as to cause great pressure upon the heels. Contracted heels will sometimes cause a considerable and sufficient pressure upon the soft structure within to bruise them badly and produce "corn."

Symptoms will vary, depending upon the condition of the corn. Lameness is commonly the first thing that leads to the discovery of the injury; this may come on slowly and increase little by little; or suddenly and be of considerable intensity. In slight corn the horse starts out sound and, after a little, goes lamer and lamer; or he may begin lame and grow better as he travels; or he may be so lame that he "goes on three legs," as in the case of a suppurating corn. There is nothing distinctive about the lameness excepting that in many instances, while the horse is *at a walk*, it can be seen that he treads upon the outside heel first.

When the shoe is removed, and the sole at the heel has been pared away a little, the red stain will be seen; this may amount to a broad patch or only to a small spot; it may be of a brown or even of an almost black color, when it is old; the rule being that the brighter red it is the more recent has been the bruise. Rarely there may be

no more than a yellow spot; this is because the bruise has been severe enough to cause an outpour of serum, without having ruptured a blood-vessel, and is more frequently seen in "contracted" feet. It may happen that the horse, although showing lameness, has been kept at work and the bruising considerably added to, until he rather suddenly becomes so lame that he can hardly put his foot to the ground. When this is the case, upon removing the shoe it will be found that the slightest tap from a hammer, or pressure with the pincers, upon the part, will show very great pain; and further examination, by cutting through the horn, will be followed by a small evacuation of pus, which is generally of blackish color and has a bad smell; this condition is called a suppurating corn. If a suppurating corn is not discovered or properly treated, after a time of considerable lameness a little soft swelling will appear in the skin just above the coronet, which, being opened, will discharge more or less matter; and it will afterward be found that this opening runs down to the seat of corn. This is the so-called "gravel" in the foot; gravel cannot enter through the horny sole; work upward and come out above the coronet.

Treatment. — The corn must be carefully pared out to whatever extent is necessary. If there is much lameness the horse will have to be rested for a while, during which the foot should be poulticed with bran and water until the soreness has disappeared; the poultices should be kept wet and changed twice daily. After this a shoe can be put upon the foot, the only necessity being that the web is wide enough to cover over the seat of corn, and that it is "concaved," on its foot surface, enough to prevent any further possibility of the undesirable pressure. Suppurating corns may be treated in the same way, using oil meal, instead of bran, for the poultice. In the cases which have opened through, the services of a veterinarian had better be obtained.

Thrush is the result of an inflammation of the outer or secreting surface of the sensitive frog, which lies immediately below the horny frog.

Causes. — The maintained application of moisture to the horny frog, in any form, as from standing too long in damp manure, mud, poultices, etc., or it perhaps arises from "contracted" feet; or those in which navicular disease exists; or when the horny frog becomes hard, dry, and shriveled.

Symptoms. — There is an inflammation of the sensitive frog, as a result of which a more or less dark colored, bad smelling, thick, tarry fluid is discharged from about the horny frog, at first, generally, from its cleft, or possibly at its sides, deep down next to the sole, toward the heels. Unless the thrush is properly attended to it gradually extends so that it may even effect the whole of the sensitive frog; as a result of which the entire horny frog may become separated from

the sensitive structure immediately beneath; lameness may or may not be present in the slight cases, it always accompanies the severe ones, and is evidently referable to the foot. It occasionally happens, in summer particularly, that the result of the inflammation will be shown in the form of a little, rather pale, "proud flesh" in the cleft and about the bulbs of the frog; the part having become nearly, if not quite, bare of horn, and when first discovered there is often found to be a goodly supply of maggots in possession.

Treatment. — Cut away all horn from the diseased surface of the sensitive frog, and apply to it dry calomel once or twice a day until cured. In some instances the treatment will leave the parts very hard and the horse going lame. This condition will be quickly relieved by a poultice left on over night.

Seedy Toe. — The term is used to describe a condition of the foot in which there has been a separation of the wall of the hoof from the sensitive and secreting surfaces immediately beneath it, at the toe.

Causes. — Generally, a large, heavy toe clip, together with a large toe calk upon the shoe. It may also be the result of any cause which will set up an inflammation in the soft structures of the part.

Symptoms. — The front feet are generally, but not always, the ones to be affected. It is first found that the horn of the sole at the extreme toe is so soft and powdery that it easily crumbles away from slight scraping, as with the back of the thumb nail. If this horn is removed a cavity of more or less extent will be found lying under the wall of the toe, and this part, in cases of long standing, will be seen to have sunken in and extended forward at a less angle than that of the healthy toe. Lameness is not usually present until this "sinking in" of the wall has become well established.

Treatment. — First, carefully ascertain the extent of the condition with a probe of some sort. Second, cut away all undermined horn and clean all diseased surfaces. If so much of the wall has to be removed as to weaken the hoof to any considerable extent, let the blacksmith place and clinch a horseshoe nail in the wall just above the top of the cut, as he would to keep a quarter-crack from opening and closing. This should prevent any upward splitting of the wall. Dress the parts, once daily, with the oil of cade until all seems clean and good. After this operation has been done in horses going lame from the trouble, the coronet had better be blistered lightly with Spanish fly to hasten the growth of the wall downward. The shoe to be used afterward, until the wall has completely grown down, should be a wide-webbed flat bar, without calks, if possible; or otherwise, small calks welded upon the sides and heels of the shoe. It will generally be best to have a tar and oakum dressing, with a full leather, put on under the shoe,

Quittor is the term used to describe a condition in which there exists either a swelling or sore upon the coronet which, upon being examined, is found to contain one or more small "pipes" (sinuses) which lead down under the coronary band and lateral cartilages into the structure of the foot itself.

Causes. — Pricks in shoeing, suppurating corns, tread wounds of the coronet, badly treated bruises upon the coronet, or any other circumstance which may set up a suppurating process within the hoof and coronary substance.

Symptoms. — The lameness may or may not be considerable; the animal is frequently unable to touch the foot to the ground; the bunch or sore is present, as described.

Treatment. — There is absolutely nothing that will cure this condition excepting a skilled surgical operation. It will therefore be entirely useless to spend money and time in an endeavor to bring about a cure by the use of outside applications. If the horse is able to work without too much pain, it will be better to keep him at it, moderately, when the operation cannot be done. In some of these instances the parts work sound after a considerable period.

Founder — Laminitis. — The horny hoof is joined and held fast to the soft, sensitive structures beneath, by a great number of small leaf-like objects, running the full length of the wall, at the various parts of the hoof, from the coronet downward. These objects are called *laminæ*, and there are two sets of them, the horny or insensitive, found lining the wall of the hoof throughout, and the live or sensitive, composed of soft tissues which completely cover the entire surface with which the wall comes into contact. The sensitive laminæ are richly supplied with blood and are very active in their function, which is to secrete new horn in sufficiently large quantities to keep the horny laminæ and the greater part of the thickness of the wall, in good order. The hoof is strongly held in place by the close interleaving of the two sets of laminæ. The healthy condition of the inner and softer horn, of the entire wall, depends upon the healthy condition of the sensitive laminæ. When these become inflamed, as they frequently do in horses and to some extent in oxen and sheep, the disease is called *laminitis* or *founder*. When this inflammation sets up the same processes are followed as when that attacks any other soft tissue which is richly supplied with blood, namely, the vessels become congested, and an outpour of serum takes place, through their walls, into surrounding parts, which, if soft, thus become swollen. But it happens that in this instance the surrounding parts, the hoof, is so strong and unyielding that no swelling can take place. The result of this is that the animal suffers great pain, in the first place, and, unless the inflammatory process is cut short, the tendency to swell is so great that the *sole* and pedal bone of the foot, toward the toe particularly,

is pressed down until the sole becomes a bulging convex surface, through which the toe of *os pedis* (see skeleton) is sometimes forced; at the same time the secreting power of the sensitive laminae is lost to a greater or less extent, and the condition becomes chronic, with permanent alteration of structure.

Causes. — From drinking too much cold water or standing too long in a draft of cold air, when overheated; overfeeding with oats or meal; overwork, especially upon hard roads; long sea voyages, especially when the ship rolls heavily; enforced standing upon one foot while its mate is unable to bear any of the weight, as, when one of the feet or legs has been seriously injured the other foot, hind or fore as the case may be, suddenly becomes foundered from overwork of it, in standing continuously, and taking the whole weight of that extremity of the body.

Symptoms. — When the fore-feet are diseased, as the animal stands in his stall the hind legs are placed well forward, in order to take the weight from the front feet as much as possible, and he sways backward so that the weight that is on the front feet will be held, as fully as may be, upon the heels. If an attempt is made to back the horse out of the stall, he resists it and the movement is made with great difficulty. When the hind feet alone are attacked the animal stands with all four feet together, upon the heels of the hind ones, while he lifts spasmodically one after the other.

When all four feet are in trouble the standing position is nearer to that which is shown when disorder is in the front feet alone, but more pain and uneasiness is expressed. The pulse is full, strong, and frequent, showing sixty, seventy, or eighty beats a minute. The breathing, if he is standing, is much hastened, accompanied by a blowing noise, and the nostrils are distended. The temperature is raised to from one hundred and three to one hundred and five; patchy sweats cover the body; the expression is anxious and he may or may not eat while standing. The feet feel hot, the arteries in the leg, just above, throb, and if the foot is tapped, as with a hammer, a sharp indication of pain is expressed. In the severer cases the animal stands groaning and sweating, the picture of pain; when an attempt is made to move him he steps spasmodically two or three times and then lies down. After getting down and remaining so for a time, the greater expressions of pain gradually pass away.

Treatment. — It is very much to be desired that no time be lost before treatment is commenced and while the condition is in its congestive stage, from which the animal will generally make a complete recovery; while, if the inflammatory stage has been reached, the case will probably never fully recover, but will become chronic, with the malformation already described.

It is always best to get the horse out of the stall; give him a good deep straw bed, and induce him to lie down, which can generally be

done by holding up one of the front feet; when down he should be turned from side to side occasionally. The shoes should be removed, if possible, and the diseased feet put immediately into large poultices, coming well up over the coronet, made with bran and ice broken into small lumps, to which a little salt may be added in the bad cases; these poultices *must* be kept in place and renewed as often as the ice melts, night and day, for from twenty-four to forty-eight hours or until the pain is considerably relieved, when bran and cold water will be sufficient and may be continued for a few days longer. Tincture of aconite root should be given at once, in doses of twenty-five drops in two ounces of cold water, and continued until six doses have been given, or until the pulse becomes less full and frequent. Thirst will be present; the drinking water should be given in a few swallows at a time as often as each twenty minutes at first; each pailful of water should have one-quarter ounce of saltpeter dissolved in it, until one ounce has been taken during each twenty-four hours. The food had better consist only of hay and wet bran, until the fever is entirely gone. The animal will eat while lying down, if he will not do so while standing. As soon as he is able to stand, without especial pain, the animal should be walked for a short distance, at first, which distance should be increased little by little as the condition improves. The first shoes should be those having a wide web and "bars," without any calks whatever. Do not on any account allow the animal to be bled at the toes.

If the chronic condition follows, the horse may be made useful by proper shoeing. The shoes, in these instances, are to be the wide webbed bars, but a much wider and heavier shoe must be made and fully concaved, on its foot surface, from the outer edge of the web inward; so that when nailed onto the foot the sore place will not only be covered by the iron, but leave quite a little space between the shoe and the horn of the sole above; this will not only protect the sore place from pressure, but will defend it from being hurt by stones, etc., upon the road. Such a shoe may have two calks welded on at each side of the toe and at each heel, four calks in all upon each shoe.

Shoeing.

There is no subject in the whole list of measures that may be taken to prevent disease which merits a more constant and careful attention than that of the preparation of the horse's foot for the shoe; the right form of that piece of iron for the individual foot; and its proper application to the part. The term "taken to prevent," just used, means something, for it is quite within the facts to say that the larger proportion of the lameness, existing in horses that have to work for a living upon the roads and streets, is, directly or indirectly, due to the fact that they must wear these metal fenders upon their feet in order to be able to do the work which man demands of them.

And it is quite as true to say that the evil arising from this necessity may be very much lessened by the application of a quick intelligence and drilled thought to the best forms of shoes to use for certain sound, as well as for certain unsound feet, under the various circumstances in which the animals are to be worked. Of course it would be absurd to say that such shoes as the draft horse *must* wear should never be put onto the feet of an animal that is about to run a steeplechase; that is something that everybody realizes; but there are many grades, between this extreme instance of wrong shoeing and proper shoeing, that are not so glaringly wrong as to prevent them from being commonly continued in daily practice, the results of which are scarcely less disastrous, if they are not more so, than they would be in the above mentioned extreme instance.

In the first place the great differences existing in the form, quickness, and method of growth in the various sound feet must be appreciated and accepted, and that, therefore, *no* one form of shoe, or method of application of it, as to preparation of the hoof, etc., can be devised that will answer equally well or even be at all adequate for all horses. And just herein lie the reasons for the widely separated opinions found existing among so many horsemen regarding the value to be placed upon the so-called various "systems" of horse-shoeing; one who has had experience with the narrow, high-heeled feet, and has applied to them some certain brand of machine-made shoes having narrow webs, has had great, and *he* thinks remarkable, success. He recommends its use to another, who first tries it, as may happen, upon an animal which has a foot that is wider than it is long; he has with it remarkable *unsuccess*; the consequence is that the first man praises, the second *condemns*, the shoe and the method, whereas it really merits one as little as the other; the fact being that thin, narrow-webbed shoes are good for some and bad for other feet; the result has been *purely* the outcome of unrecognized natural existing circumstances — luck; this should never be a factor to be trusted to in horseshoeing.

Feet that are naturally weak in certain places, from their conformation, should be shod so that the weakness may be strengthened all possible; those that are naturally strong and overgrown at certain other places should be checked in their growth by proper paring, and covered lightly with iron at the point.

There is no one rule or shoe that will be properly applied to all sound feet; the tendency to overgrowth, in some, must be checked by a proper use of the drawing knife; the weakness of growth, in others, must be constantly stimulated and saved by all means known to the horseshoer. On no account should the drawing knife be used upon them.

Shoes having a wide web at the toe, with a narrow one at the quarters and heel, may be used in the strong, high-heeled feet, where it is desirable to give the frog a large share of work. Other feet,

those having strong toes, but low, weak heels, the walls of the parts coming very slantingly downward and forward, from the coronets, the frogs being large and spongy, must have a shoe that is both wide in the web and longer and wider than the feet are at the heels. Between these two extremes the shoe should be so fashioned as to meet the individual requirement.

Bar shoes should never be used except upon some unsound feet or in the presence of lameness due to some other causes; and then with some caution, as they are capable of producing considerable injury.

All horses' feet will be the better for being kept constantly shod with a tar and oakum dressing and a leather, both summer and winter.

Calks are necessary evils and should not be used unless positively necessary to give the draft animal a good hold upon the ground; to lift the soles of the feet up from the ground, when the roads are full of small stones; or to keep horses from slipping.

Parasitic Diseases.

All of the animals may be more or less infested by vermin, some of which live upon the skin while others infest the stomach and intestines. These are respectively known as external and internal parasites.

External Parasites.

Fleas found on Horses, Cattle, and Dogs.

Lice found on Horses, Cattle, Sheep, and Dogs.

Ticks found on Horses, Cattle, Sheep, and Dogs.

Grubs found on Horses and Cattle.

Mange found on Horses and Dogs.

Scab in Sheep.

The Fly. Maggots in Sheep.

Fleas. — This pest is so well known that it will need no description as to general appearance; there are several varieties of them, all of which have much the same characteristics.

Dog, cat, and man fleas, when very abundant, will attack *horses and cattle*, causing much itching and small swellings of the skin; they may be discovered by careful examination.

Treatment. — In horses and cattle: Sponge the whole skin with a mixture of one part of pure carbolic acid to fifty parts of water.

In dogs, the Persian insect powder should be thoroughly rubbed into the hair, and allowed to remain upon the animal for from twenty minutes to half an hour, during which time he must be kept from lapping himself. This is to be immediately followed by a good thorough bath of soap and warm water.

Lice, as found upon animals, are of two varieties. One is furnished with an apparatus for piercing the skin and sucking the blood, upon which he lives; the other has strong jaws and simply bites the skin, feeding upon its insensitive outer covering and the hair. Both of these are found upon horses, cattle, and dogs; the last alone, upon sheep. In size lice are from about one sixteenth to one eighth of an inch long, roundish and flattish in shape and of a dirty white color. It is not possible to distinguish the various extremities excepting by the use of a moderately strong magnifying glass, nor is it necessary to do so for the purpose of getting rid of them.

Symptoms.—In *horses* and *cattle*, loss of flesh and hair, together with the itching condition shown, should lead to a suspicion of their presence, which a close examination will confirm, if lice are present.

In *Sheep*, the wool becomes dry, the body itches and is rubbed against any convenient object; the wool is torn out, he nibbles at his flanks, and scratches at his elbows with the hind feet. Search should be made for the parasite on the inner parts of the thigh and on the sides of the neck. In *dogs*, there is considerable irritation of the skin, and restlessness. When this is due to the presence of lice, a careful examination of the head, neck, flanks, and root of tail should not fail to find them.

Treatment.—Lice can be killed in horses, cattle, and dogs, by rubbing the animal with the sulphur lotion. (See prescriptions.) The application should be repeated within a week to ten days in order that all lice which have been hatched, since the first treatment, from the remaining nits, which cannot be safely destroyed, may be killed.

Sheep must be thoroughly dipped in a sulphur bath.

Ticks.—Wood ticks attack *horses*, *cattle*, *sheep*, and *dogs*, and are commonly seen in various, more or less uncultivated places; they live upon bushes and from them are gathered as the animal passes through the brush. When the tick has gained lodgment he commences to bore through the skin; this done, he fills himself with blood and drops to the ground.

Symptoms.—Great irritation, uneasiness with scratching or rubbing. Examination will easily reveal the presence of the parasite, if he is there. If the tick is pulled out before he is full of blood and ready to come, the head and a part of the body will be left in the skin, causing a local point of irritation, with a small sore.

Treatment.—Either cover the tick with some heavy oil or touch him lightly with a piece of hot iron wire, when he will voluntarily quit his hold. Flocks of sheep that have become infected must be dipped in any good "sheep dip," and the best time to do it is immediately after shearing. Dipping should be repeated in three or four weeks.

Grubs are found in the skins of horses and cattle. They come as a result of the attack of a large "fly" which, while resting on the animal, deposits its egg into or onto the skin. This egg passes the winter in the hide of the animal, in a little round sack which is furnished with an external opening, through which he escapes when his full growth is reached late in the spring, falls to the ground and develops into a fly.

Symptoms. — There will be one or many small, hard bunches upon various parts of the skin, along each side of the backbone particularly, which, upon being closely examined, will be found to have a small hole in its top.

Treatment. — The grubs should be pressed out of the openings during the late winter and destroyed.

Maggots on the Skin are found on *horses, cattle, and sheep*. Several flies, the bluebottle, the screw-worm, the meat fly and the flesh fly, attack sores and wet, filthy places, upon the skins of animals, leaving a deposit of their eggs which hatch and develop into maggots that may be the source of considerable trouble unless they are removed.

Treatment. — Clip off the hair or the wool in sheep from wet, filthy places, pick out the maggots carefully and apply to the skin a mixture of one ounce of oil of tar to six ounces of cotton-seed oil, twice daily, for as long as necessary. Or, clean the wound carefully with, first, castile soap and warm water, afterwards with a mixture of one part of carbolic acid to fifty parts of water. If the maggots are in the frog of the foot of the horse; or between the claws of the feet in cattle and sheep, clean the parts out carefully, using no water or soap, and apply dry calomel to the sores.

Flies bite horses and cattle, and suck their blood, causing great annoyance and sometimes the death of the horse.

Treatment. — The usual means of reducing the annoyance and ill effects to horses should always be undertaken; fly nets, dark stables from which the manure is kept removed, etc. *Cattle* may have Persian insect powder well rubbed into the hair, or be bathed with a decoction of walnut, elder-leaves, or tobacco. The poisoned bites may be treated with a mixture of one part of carbolic acid to twenty parts of cotton-seed oil, applied twice daily; or a mixture of one dram of carbolic acid, one-quarter ounce of saleratus, to one quart of water, may be used instead. This last mixture may also be used to relieve the pain caused by the *stings of bees, hornets, and wasps*.

Scab in Sheep. — The parasites causing this well-known disorder, which largely destroys the fleece and too often the life of the animal, is to all intents and purposes a form of louse, although he is not scien-

tifically described as such. There are four varieties: one which burrows in the skin; another that simply bites and holds on, the common scab through which the greatest losses come; a third, the cause of foot scab; and a fourth, the head scab, the smallest of all and scarcely to be seen by the naked eye.

Causes. — The passing of the insect from one animal to another, which may take place by the aid of such inanimate objects as fences, buildings, railroad cars, etc. But as the insect himself cannot live for any great length of time away from the warm body of the sheep, and inasmuch as the eggs are deposited in collections of manure and from there picked up by the wool of animals lying upon them, the *greatest* source of its spread is from pastures upon which flocks have been grazing, as well as in sheds and railroad cars from which the manure has not been properly removed.

Symptoms. — When first attacked by scab a sheep will begin scratching and rubbing himself; he will bite at his wool, pulling it out more or less with his mouth, which gives the fleece a moth-eaten appearance. As he becomes more affected he is constantly uneasy, scratching, pulling at his wool, etc. If such an animal is driven for any distance all the symptoms become aggravated.

Treatment. — The sheep must be “dipped,” a process so well and widely known that a description of it is not necessary here. A number of good “dips,” are on sale and can be more easily obtained than if made at home. It will be better to use a mixture containing sulphur and *no arsenic*. If a prepared “dip” is used that contains no sulphur, it will be better to add sixteen and one-half pounds of sifted flowers of sulphur to every one hundred gallons of water used.

Dip the entire flock immediately after shearing, and repeat the process in ten days. Keep each sheep in the bath for two minutes, exactly, and dip the head once, at least. Be careful with the rams, as they do not submit to the process so quietly as the ewes. *Again, do not use dips containing poisons.*

Mange. — Affects *dogs* and *horses*.

Causes. — Mange depends upon the presence of a minute parasite which lives in the skin, underneath its outer covering, and is conveyed from animal to animal, directly or otherwise.

Symptoms. — The animal begins to scratch and rub; there first appears upon the surface of the skin a number of small whitish-yellow pustules, which are soon followed by sores, scabs, abrasions when the skin is scratched, bitten, or rubbed by the animal; and a thickened skin after the disorder has been present for some time. True mange is not such a commonly seen disorder as is thought, and inasmuch as the symptoms, when it is present, are *precisely* those of some of the forms of eczema, which are *frequently* seen, it is not possible to separate

one from the other, unless, upon a microscopic examination, properly made by one who is expert in the matter, the parasite, which is not visible to the naked eye, is found.

Treatment. — Clip the hair on *horses* over the affected parts. Soften the skin by bathing it for fifteen minutes at a time with hot water, rub it dry and apply the ointment indicated below, once a day, until the skin becomes smooth. In dogs *shave* the hair from the entire skin. Soak the animal in a hot-water bath for fifteen minutes, dry him as soon as possible, and immediately apply the following ointment, which should be well rubbed in, over the entire surface.

Take of beta naphthol, two drams; flowers of sulphur, four drams; balsam of Peru and vaseline, of each, two ounces; rub well together and apply once a day as directed above.

Internal Parasites.

Tapeworms found in Horses, Cattle, Sheep, and Dogs.

Round worms found in Horses, Cattle, Sheep, and Dogs.

Threadworms found in Horses, Cattle, Sheep, and Dogs.

Bots found in Horses.

Gadfly found in Sheep.

Tapeworms. — There are a great variety of these, one or the other or several of which are found in all of the animals, but in dogs and sheep particularly. In sheep they produce results that are individual to that animal, as will be pointed out.

Round Worms are also in great variety of “breeds” and sizes in the different animals, from the large ones measuring some six or eight inches long in horses, with a considerable diameter at their largest parts, to the small threadworms found in the breathing tubes of calves and lambs; and the so-called “pinworm” found in the rectum of horses and dogs.

Symptoms. — With some few exceptions, which will be pointed out, intestinal worms produce no symptoms that are *distinctive* of their presence; all that are generally shown indicating no more than a persistent indigestion, which refuses to yield to the ordinary treatment for that disorder. The animal may show an occasional attack of colic, diarrhœa, and have a persistent dry cough. Dogs frequently have repeated attacks of convulsions (fits), or even muscular twitchings, as in St. Vitus’s dance. All of the animals are dull, have fickle or depraved appetites, considerable thirst, and lose flesh rapidly.

Treatment. — In horses and cattle give sixteen powders, each of which contains two drams each of powdered gentian root and powdered sulphate of iron, well mixed together. One powder should be given night and morning in dampened grain feed, until all have been taken. The last powder is to be given in a good-sized warm bran mash; two

hours afterward give a good dose of physic, preferably the aloes ball for horses (see prescription); and the horse should not be used until the effects of the cathartic have passed away, something like three days; he may be used during the administration of the powders. Epsom salts will be the best cathartic for cattle.

In Sheep the proper dose will be: Kamala, three drams; gruel made from linseed, six ounces.

In Dogs this prescription may be used for an animal as large as a collie: Kamala, three drams, mixed with one ounce of warmed milk. The dog should not be fed for twelve hours before getting the medicine, which will have to be turned down his throat. The evening before the animal is to receive the worm medicine in the morning he should be given three tablespoonfuls of castor oil.

These doses will be sufficient for either tape or round worms.

Gid or Turn Sick in Sheep. — This term is used to describe a condition arising from the presence, in the brain, of the larvæ (early immature forms) of one of the tapeworms.

Causes. — The eggs of the worm are distributed over the pastures by dogs, usually, and the disorder is more particularly seen among sheep when dogs are used in connection with their care. The eggs of the tapeworm, coming from the dog, are gathered with the grass by the sheep, pass into their stomachs, hatch there, and at once bore through the walls of that organ, getting into the circulating blood. The flowing blood then carries them to all parts of the body; those reaching the brain gain a lodgment, become encysted and continue to grow until they reach to about the size of a bean.

Symptoms. — When the worm has reached its size, as developed in the brain, which will be in from two to three months after it has been taken into the stomach, the sheep is first noticed to be dull, grazes indifferently, does not chew the cud well, staggers as it walks, finally falling down, as if from dizziness. Or, at other times, while grazing, the animal suddenly jumps and runs as fast as he can, for some little distance. If the sheep survives so far, he stops eating, begins to lose flesh and grow weak rapidly, has an anxious look, cannot see, and moves about in circles, with the head hanging. If the trouble is confined to one side the circle is always in the same way; if on both sides, first one way and then the other, until he dies, either from interference with some function of the brain, or from exhaustion.

Treatment. — The only relief to be had is through a surgical operation, which includes the removal of a portion of the skull and the direct withdrawal of the worm. The operation must be done by one who is expert in it.

It will be better to dress the animal for mutton as soon as the first symptoms are shown.

Preventive treatment will be the best of all and may easily be accomplished by giving an occasional dose of worm medicine to the dogs.

Hoose—Husk—Parasitic Bronchitis.—This malady seriously affects calves and lambs; it also exists, but with far less following damage, among cattle and sheep.

Causes.—Hoose is due to the presence of a threadworm, from one, to two and one-half inches long, in the breathing (bronchial) tubes. They appear to gain entrance to the stomach through the water supply, or from grasses grown upon low-lying land, where there is insufficient drainage. It is said that they pierce the walls of the stomach and intestines, gain entrance to the circulation and find final lodgment in the bronchial tubes. This seems to be impossible, but it is to be considered that the same worms are occasionally found in the heart and blood-vessels; which shows that in some way they are present in the circulating blood stream, as well as in the intestines.

Symptoms.—The presence of the parasite in the lung causes violent coughing, difficulty in breathing, anæmia, shown by a white, waxy appearance of the membranes; the skin grows dry, and in lambs the wool has a tendency to fall out; the animal loses strength and dies in from one to four months, depending upon its strength and the number of worms present. Occasionally one or two of the parasites may be found in the matters that are coughed up or sneezed out.

If the worms are in the digestive organs as well as the lungs there will be additional symptoms of indigestion, diarrhœa, colicky pains, considerable thirst, etc.

Treatment.—As a preventive measure move the animals to higher pasture as soon as the condition is recognized; or, better, do not turn them into low, wet pastures at all. *Medical treatment* consists in inhalation of the gas of burning sulphur or the injection of the following mixture into the windpipe: Iodine, one-half dram; iodide of potash, two and one-half drams; boiled water, which has been allowed to cool, three ounces; turpentine, two ounces; olive oil, six ounces; mix the turpentine and oil together, then add the mixture of iodine and water to it. When it is to be used, shake the bottle well, take from one to two drams of the mixture into a large hypodermic syringe, and, pushing the sharp, hollow needle of the instrument through the skin and wall of the windpipe, slowly inject the mixture. Repeat the process every two or three days for as long as is necessary. Both of these methods will be safer if done by one who is expert in the matter.

Bots in Horses.—These parasites come from the gadfly of the horse, which, generally while the animal is at pasture, deposits and glues a small yellow egg on the hair covering various parts of the body,

mostly upon parts that are within reach of the mouth. When, in licking itself, the tongue of the horse reaches any of the eggs, after they are three weeks old, its warmth and moisture hatches them, when, as maggots, they enter the mouth and are swallowed into the stomach, to the walls of which they fasten themselves by means of a pair of hooks that are near their heads, and so remain until their full growth is attained; they then loosen their hold and, passing through the bowels, are dropped onto the ground with the manure, having spent about eight months in the horse. When they reach the ground they bury themselves beneath its surface and remain there, as a chrysalis, for six or seven weeks, when they come out as a fully formed gadfly ready, in their turn, to deposit the eggs upon other horses. While it is sometimes true that, if the bots are in large numbers, they *occasionally* cause illness in the horse, there are no *definite* symptoms pointing to their presence; nor is there any special treatment that will dislodge or kill them. Sickness of horses, from bots, is of very, very rare occurrence, notwithstanding the wide-spread opinion to the contrary.

Parasitic Nasal Catarrh of Sheep.—This disorder results from the attack of another gadfly, resembling an overgrown horsefly, which deposits its maggot-like larvæ up in the nostrils of the animal, where they remain until they are about three quarters of an inch long, when they drop to the ground, bore into the earth and remain there, in chrysalis form, for one or two months, when they emerge as the fully formed fly.

Symptoms. — The sheep, on becoming aware of the presence of a fly, shakes his head, stamps with the front feet, runs, with his nose close to the ground, into the middle of the flock. The whole flock become alarmed, put their noses near to the ground and huddle together as closely as possible.

The young maggots, deposited on the membrane lining the nostril, at once commence to crawl higher up in those cavities, often reaching other cavities in the head; these movements cause considerable irritation in the sheep, evidenced by shaking the head and sneezing. As the maggots grow in size the sheep show all the symptoms of a severe nasal catarrh, as already described. The duration of the attack may be from sixty days to ten months, depending upon the length of time during which the maggots remain in the cavities.

Treatment. — The practical remedy is prevention. This may be easily accomplished in small flocks by smearing the noses of all of the sheep, by means of a brush, with a mixture of equal quantities of tar and grease for at least once a week during the entire fly season. Large flocks may be herded on dusty ground, during that part of the day in which the flies are most active.

An ingenious method of prevention has been proposed as follows:

"Take a square log and bore holes in it with a large auger; in these place salt, and dress the edges of the holes with tar. Sheep will then apply tar to their noses every time they eat the salt." This method might well repay trial, in large flocks.

Curative treatment is by surgical operation only and must be done by an expert. It is not practicable excepting in the case of an occasional animal that has an especial value.



IF GOOD FOR HORSE, WHY NOT
FOR MAN?—From *Life*.

APPENDIX.

Methods of Giving Medicines to Animals.

Balls or Pills are given to *horses* by first wetting or oiling the surface of the ball; grasping one extreme end of it between the pointed fingers and thumb of the right hand; pulling the tongue well out to the left side of the mouth, with the left hand; and placing the ball well back in the mouth, and over the belly of the tongue, withdrawing the right hand quickly and releasing the tongue immediately.

Unless one is practised in this operation, the right hand had best be covered with a glove to prevent its being scratched by the teeth.

Drenches or Drinks. — Fluid medicines are given to horses by first passing a loop of rope into the mouth, as a bit is placed, slipping a pitchfork tine into the other end of the loop, and raising the head so that the medicine will flow *down* the throat. Of course the head may be raised in any other way. The medicine having been previously placed in a bottle, made of glass or *rubber*, without a shoulder, is then turned into the uplifted mouth, carefully and slowly, and the head held up until the medicine is all swallowed. Care should be taken not to let the bottle get between the horses' teeth.

The process of drenching *cattle* and *sheep* is much more easily accomplished: an assistant holds the head up so that the mouth is on a horizontal line with the neck, or a little higher. The dose giver, standing at the left side of the animal, pulls the cheek a little to one side with a finger of the left hand and turns the medicine slowly from the bottle into the pocket so made. These animals swallow much more readily than horses; but if signs of choking or a desire to cough is shown during the process, the head must be immediately released, or the fluid is apt to go into the lungs. This same caution should be observed while drenching horses.

In giving fluid medicines to *dogs* there is no necessity for opening the mouth, in fact it is best not to do so. The head is held up by an assistant; a finger inserted at the angle of the mouth pulls the cheek out, thus forming a pouch into which the dose may be slowly poured.

Pills are given to dogs by having an assistant open the mouth wide, when the pill is quickly placed as far back as possible and

pushed over the belly of the tongue with a finger or small stick, like a lead pencil.

Externally.

Liniments and lotions are to be rubbed onto the desired portions of the surface of the body. They are generally wasted by being used in too large quantities at a time. The harder a *stimulating liniment* is rubbed in, the quicker and greater will be its action. Cooling and healing fluids usually give the best results if they are simply "sopped" onto the parts.

Blisters. — Before applying any blister the hair should first be closely clipped from the part to be treated. Parts below, over which the blister, or the discharge produced by it, are likely to run, should be covered lightly with a little lard or sweet oil.

Application of a Blister of Spanish Flies.—The parts to be blistered should then be spread with a moderate covering of the ointment, which is to be rubbed in with the hand, more of the ointment added and rubbed in if necessary; the surface is then to receive a light spreading of the ointment, which is to be left upon the surface; and the animal should be tied up so that he cannot reach the parts with the mouth, or lie down. As soon as the discharges caused by the blister have dried, which will be in about three days, the part should be carefully washed by *sopping* it with castile soap and warm water, using as little water as possible and considerable of the soap. After the parts have become thoroughly dry, from the washing, they may receive a *very light* covering of lard or sweet oil and the animal may "have his head" again. The covering with *a little* lard or sweet oil should be repeated every three days until the hair begins to grow again. If it should happen that the blister is rubbed by the animal upon any other part of the body, it should be immediately washed off and the part greased over. The harder a blister is rubbed in the greater will be its action.

Blisters of Red Iodide of Mercury are to be applied by first rubbing a little of the ointment well into the parts, using only one or two of the fingers, instead of the whole hand. The first application should be added to, once a day, until the parts become sore, by having a *little* more of the ointment rubbed *lightly* onto them. This blister is allowed to remain, without washing, until a heavy scab is formed, when it may be oiled, *lightly*, every other day, until it begins to be removed by the new-coming hair. The horse should be kept standing as long as the ointment is being applied.

Poultices may be made of bran, oil-meal, cotton waste, sponge, and either hot or cold water; the object being to keep moisture constantly applied to the part under treatment. Poultices are conveniently applied to the feet of horses by using a square piece of some strong material, as oat bagging, which is large enough to hold

the poultice and come up over the hoof to be tied under the fetlock; otherwise they are to be held in place by bandages.

Fomentations are generally used upon parts where it is impossible to retain a poultice. They consist in frequently *sopping* the parts with hot water for fifteen or twenty minutes at a time.

Medicines and their Doses.

For convenience, certain abbreviations will be used, as follows: For the animals: H. for horses; C. for cattle; S. for sheep; D. for dogs. For the doses: m. for drops; gr. for grains; dr. for drams; oz. for ounces; lb. for pounds; pt. for pints; dr. 1=1 teaspoonful; oz. 1=2 tablespoonfuls fluid measure; 16 ounces=1 lb. dry measure.

Table of Doses.

Acetanalid. H., dr. 1-2; S., dr. $\frac{1}{2}$ -1; D., gr. 3-5.
 Acetic Acid, Dilute. Used only externally, instead of vinegar.
 Aconite, Tinc. of Root. H., m. 5-30; C., dr. $\frac{1}{2}$ -1; S., m. 5-10; D., m. $\frac{1}{2}$ -5.
 Alcohol. H. and C., oz. 1-3; S., dr. 2-4; D., dr. 1-2.
 Aloes, Barbadoes. H., oz. $\frac{1}{2}$ -1; C., oz. 1-2; S., oz. $\frac{1}{2}$ -1; D., gr. 20-60.
 Ammonia, Aromatic Spirits of. H. and C., oz. 1-2; S., dr. 2-4; D., dr. $\frac{1}{2}$ -1.
 Ammonia Carbonate. H., dr. 2; C., dr. 3-4; S., gr. 15-40; D., gr. 3-10.
 Ammonia, Water of. H. and C., oz. $\frac{1}{2}$ -1; S., dr. 1-2; D., m. 10-20.
 Anodyne Hoffman's. H. and C., oz. 1-2; S., dr. 2-4; D., m. 10-60.
 Antipyrin. H., dr. 1-2; S., dr. $\frac{1}{2}$ -1; D., gr. 3-7.
 Atropine, Sulphate of. H., gr. 1-2; C., gr. 1-2; S., gr. $\frac{1}{15}$ - $\frac{1}{12}$.
 Balsam of Peru. H. and C., oz. 1-2; S., dr. 1-2; D., m. 10-30.
 Belladonna, Fluid Extract of. H., dr. 1-2; C., dr. 2-3; S., m. 10-15; D., m. 1-3.
 Bismuth Subnitrate. H., dr. 2-4; D., gr. 10-30.
 Brandy. H. and C., oz. 2-4; S., oz. $\frac{1}{2}$ -1; D., dr. 1-4.
 Bromide of Potash. H. and C., oz. 1-2; S., dr. 2-4; D., gr. 5-60.
 Buckthorn, Syrup of. D., oz. 1-2.
 Calomel. H., dr. $\frac{1}{2}$ -1; C., dr. 5-6; D., gr. 3-5 (single doses.)
 Camphor, Spirits of. H., dr. 1-3; C., dr. 2-4; S., m. 15-60; D., m. 3-20.
 Carbolic Acid, 90 per cent solution. H. and C., m. 15-30; S., m. 5-10.
 Carron Oil. H. and C., oz. 4-6; S., oz. 1-2; D., dr. 1-8; Foals and Calves, oz. 2-4; Lambs, oz. $\frac{1}{2}$ -1.
 Cascara, Fluid Extract of. D., m. 5-30.
 Castor Oil. H. and C., pt. 1; S., oz. 2-4; D., oz. 1-2.
 Cerium Oxalate. D., gr. 3-5.
 Chlorate of Potash. H. and C., oz. $\frac{1}{2}$ -1; S., dr. $\frac{1}{2}$ -1; D., gr. 5-20.
 Cod-liver Oil. H. and C., oz. 2-4; S., oz. $\frac{1}{2}$ -1; D., dr. 1-3.

- Colchicum, Wine of. H. and C., dr. 3-8; D., m. 10-30.
 Copper, Sulphate of. H. and C., dr. 2-4; S., gr. 20-40.
 Cottonseed Oil. (See Olive Oil.)
 Cream of Tartar. H. and C., oz. $\frac{1}{2}$ -1; S., oz. $\frac{1}{2}$; D., dr. $\frac{1}{2}$ -1.
 Croton Oil. H. and C., m. 15-30; S., m. 3-5; D., m. $\frac{1}{2}$ -3.
 Digitalis, Tincture of. H. and C., dr. 2-4; S., m. 30-dr. 1; D., m. 5-30.
 Ether. H. and C., oz. 1-2; S., dr. 2-4; D., m. 10-60.
 Epsom Salts. H., lb. $\frac{1}{2}$ -1; (laxative) oz. 2-4; C., lb. 1-2; (laxative) oz. 3-4; Calves and Foals, dr. 2-3; S., oz. 4-6; D., dr. 1-4.
 Gentian, Powdered Root. H. and C., oz. $\frac{1}{2}$ -1; S., dr. 1-2; D., gr. 5-30.
 Gentian, Fluid Extract. H. and C., oz. $\frac{1}{2}$ -1; S., dr. 1-2; D., m. 5-30.
 Ginger, Powdered Root. H., dr. 2-oz. 1; C., oz. 1-4; S., dr. 1-2; D., gr. 5-15.
 Ginger, Tincture of. H. and C., oz. 1-4; S., dr. 2-4; D., dr. 1-4.
 Golden Seal. Hydrastus Canadensis Powder. H. and C., dr. 2-4; S., dr. 1-2; D., gr. 5-30.
 Iodide of Potash. H., dr. 2-4; C., dr. 4; S., gr. 15-30; D., gr. 2-10.
 Iodine. H. and C., dr. $\frac{1}{2}$ -1; S., gr. 10-20; D., gr. 2-5.
 Iron, Tinct. of Chloride. H. and C., oz. 1-2; S., m. 20-30; D., m. 5-60.
 Iron Sulphate, Powdered. H. and C., dr. 1-2; S., gr. 20-30; D., gr. 1-5.
 Jalap. D., dr. 1-2.
 Kamala. H., oz. 1; D., dr. $\frac{1}{2}$ -2.
 Linseed Oil (raw). H., pt. $\frac{1}{2}$ -1; C., pt. 1-2; S., oz. 6-12; D., oz. $\frac{1}{2}$ -2.
 Male Fern, Oleoresin of (for tapeworm). H. and C., dr. 3-6; S., dr. 1-2; D., m. 15-60.
 Morphine. H. and C., gr. 3-10; S., gr. $\frac{1}{2}$ -1; D., $\frac{1}{8}$ - $\frac{1}{2}$.
 Mustard (emetic, dog). D., oz. $\frac{1}{2}$, in warm water.
 Nux Vomica, Powdered. H. and C., dr. 1-2; S., gr. 20-30.
 Nux Vomica, Fluid Extract, doses same as powder.
 Olive Oil. H. and C., pt. 1-2; D., oz. 2-4. *Cottonseed* or *Sweet Oil* may be used internally in place of this.
 Opium, Tincture. H., oz. 1-2; C., oz. 2-3; S., dr. 2-4; D., m. 3-30.
 Phenacetin. H., dr. 2-3; D., gr. 3-10.
 Quinine, Sulphate of. H., gr. 5-60; C., dr. $\frac{1}{2}$ -1 $\frac{1}{2}$; S., gr. 5-10; D., gr. 1-2.
 Rum. H. and C., oz. 2-4; S., oz. $\frac{1}{2}$ -1; D., dr. 1-4.
 Salicylic Acid. H. and C., dr. 2-6; S., dr. 1-2; D., gr. 5-30.
 Saltpeter, Nitrate of Potash. H. and C., oz. $\frac{1}{2}$ -1; S., dr. $\frac{1}{2}$ -1; D., gr. 5-20.
 Soda Bicarbonate or Saleratus. H. and C., oz. $\frac{1}{2}$ -2; S., dr. $\frac{1}{2}$ -1; D., gr. 5-30.
 Sulphite of Soda. H. and C., oz. 1; S., dr. $\frac{1}{2}$ -1; D., gr. 5-30.
 Sulphur, Flowers of. H. and C., oz. 2-4; S., oz. $\frac{1}{2}$ -1; D., dr. $\frac{1}{2}$ -4.
 Sweet Spirits of Niter. H. and C., oz. 1-4; S., dr. 2-4; D., m. 10-60.
 Tar, Oil of, Oil of Cade. H. and C., oz. $\frac{1}{2}$ -1; S., dr. 1-2; D., m. 15-60.
 Whiskey. H. and C., oz. 2-4; S., oz. $\frac{1}{2}$ -1; D., dr. 1-4.
 Zinc, Oxide of. H. and C., dr. 1-2; D., gr. 5-10.
 Zinc, Sulphate of. Emetic only in dogs, gr. 10-15.

PRESCRIPTIONS.

Cathartics

Horse.

- | | | |
|-----|--------------------------|-------------------|
| (1) | Powdered Barbadoes Aloes | 1 oz. |
| | Powdered Ginger Root | $\frac{1}{2}$ dr. |
| | Vaseline | q. s. |

Enough of the vaseline should be used to make the whole mass of the consistency of rather hard putty; all is then to be rolled up in a piece of brown tissue paper, into the form of a shotgun cartridge, and given, as directed, all at one dose. Do not repeat; it should show its effects in about twenty-four hours. The dose may be strengthened by adding from $\frac{1}{2}$ –1 dr. of calomel.

If the ball cannot be given take:

- | | |
|--------------------------|-------------------|
| Powdered Barbadoes Aloes | 1 oz. |
| Water | $\frac{1}{2}$ pt. |

Mix, and float the aloes down, as a drench.

Calomel may be added to this dose, as above.

- | | | |
|-----|--------------------|-------------------|
| (2) | Epsom Salts | $\frac{3}{4}$ lb. |
| | Tincture of Ginger | 2 dr. |
| | Warm Water | 1 pt. |

Dissolve the salts in the water, add the ginger, and give all at one dose, as a drench.

- | | | |
|-----|-------------|-------|
| (3) | Linseed Oil | 1 pt. |
| | Saleratus | 1 oz. |

Shake up the saleratus with the oil and give as a drench.

Cattle.

- | | | |
|-----|-----------------|------------------|
| (4) | Epsom Salts | 1–2 lb. |
| | Molasses | 2 oz. |
| | Powdered Ginger | 1 tablespoonful. |
| | Warm Water | 3 pts. |

Dissolve the salts in the water, add the other two articles, and stir the mixture well together; give all at a dose, as a drench. The large quantity of water is necessary for this dose in cattle. It may be repeated in twenty-four hours, if necessary. In a very obstinate case the *first* dose may have five or six drops of croton oil added to it. The oil should not be repeated.

- | | | |
|-----|-----------------|---------|
| (5) | Raw Linseed Oil | 1–2 pt. |
| | Saleratus | 2 oz. |

Shake well together and give in one dose, as a drench.

Sheep.

- | | | |
|-----|-----------------|-----------------|
| (6) | Epsom Salts | 6 dr. |
| | Molasses | 1 oz. |
| | Powdered Ginger | 2 teaspoonfuls. |
| | Warm Water | 1 pt. |

Mix and give as for cattle.

- | | | |
|-----|-------------|----------------|
| (7) | Linseed Oil | 6-10 oz. |
| | Saleratus | 1 teaspoonful. |

Mix and give as for cattle.

- | | | |
|-----|--------------------------|--------------------|
| (8) | Powdered Barbadoes Aloes | $\frac{1}{2}$ -oz. |
| | Tincture of Ginger | 1 dr. |
| | Linseed Oil | 6 oz. |

Shake all together and give as a drench.

Lambs.

- | | | |
|-----|-----------|--------------------|
| (9) | Warm Lard | 3-4 tablespoonful. |
|-----|-----------|--------------------|

Dogs.

- | | | |
|------|--------------------|-------------------|
| (10) | Castor oil | 1 oz. |
| | Syrup of Buckthorn | $\frac{1}{2}$ oz. |
| | Syrup of Poppies | 2 dr. |

Mix and give all at a dose, to a medium sized dog. The dose may be increased for larger, or decreased for very small dogs.

- | | | |
|------|---------------------------|-------------------|
| (11) | Castor Oil | |
| | Olive Oil, equal portions | $\frac{1}{2}$ oz. |

This mixture may be used for dogs of the size of a fox terrier; and is best for all delicate animals. For toy dogs it should be lessened, a little.

Compound Cathartic Pills contain, to one pill

- | | | |
|------|------------------------------|--------------------|
| (12) | Extract of Colombo, compound | $1\frac{1}{4}$ gr. |
| | Extract of Jalap | $\frac{1}{2}$ gr. |
| | Calomel | 1 gr. |
| | Gamboge | $\frac{1}{4}$ gr. |

These pills may be got from any druggist. The dose is from one-half of one pill for small, to two or three pills for large, dogs.

Compound Cascara Tablets contain to one tablet.

- | | | |
|------|-----------------------|--------------------|
| (13) | Extract of Cascara | 2 gr. |
| | Extract of Belladonna | $\frac{1}{16}$ gr. |
| | Podophylin | $\frac{1}{4}$ gr. |

The tablets may be procured from the druggist. The dose is

from one half to one or two tablets, given once a day, at night. They are very useful in cases of slow digestion with persistent constipation.

Laxatives.

Any of these cathartic doses, excepting those containing aloes and croton oil, may be so lessened in quantity as to be used as a laxative; which may be repeated once each day for as long as is necessary. They should generally be reduced to about one quarter of their original strength.

Tonics.

Horse.

- (14) Powdered Sulphate of Iron
 Powdered Gentian Root, equal parts 3 oz.

Mix well together and divide into twelve powders. A powder to be given night and morning in dampened grain feed. A good general tonic. To be used when membranes are pale.

- Or,
- | | |
|---------------------------|-------|
| Powdered Golden Seal | 2 oz. |
| Powdered Nux Vomica | 1 oz. |
| Powdered Sulphate of Iron | 1 oz. |
| Bicarbonate of Soda | 2 oz. |

This powder *must* be well mixed; it is then to be divided into eight separate powders, one of which should be given night and morning in dampened grain feed. The best all-round tonic, especially following chronic indigestion, hide-bound, loss of flesh, and in *heaves*.

- Or,
- (15)
- | | |
|---------------------------|-------|
| Powdered Gentian Root | 4 oz. |
| Powdered Sulphate of Iron | 2 oz. |
| Powdered Ginger Root | 1 oz. |
| Powdered Nux Vomica | 1 oz. |

This powder *must* be well mixed, and divided into eight equal parts, one of which is to be given night and morning, in the usual way. It is to be used when a slight stimulating effect is desired, as when the appetite is poor. All tonic powders may be given in the form of a ball, by mixing them with a sufficient quantity of molasses, and wrapping them in paper; or by simply floating them in one half pint of water and giving, as a drench, just after the animal has finished eating, if they are refused when mixed with the grain.

“CONDITION POWDER”

- (16)
- | | |
|------------------------------|--------|
| Powdered Bayberry Bark | |
| Powdered Golden Seal | |
| Powdered Bloodroot | |
| Powdered Salt, of each | 2 lbs. |
| Powdered Charcoal | |
| Powdered Black Antimony | |
| Powdered Ginger Root | |
| Powdered Anise-seed, of each | 1 lb. |

All to be thoroughly mixed. Dose, tablespoonful, twice daily. This will be found to be a good mild tonic to be used when the animals are in no more than an unthrifty condition.

FLUID TONIC

- | | | |
|------|--------------------------|--------|
| (17) | Strychnine | 8 grs. |
| | Tincture of Gentian Root | |
| | Water, equal parts | 8 oz. |

Mix and shake until strychnine is dissolved. Dose, one ounce, three times daily.

Cattle. The same tonics in the same doses as prescribed for horses, may be given to cattle.

Sheep.

- | | | |
|------|----------------------------------|-------|
| (18) | Tincture of Chloride of Iron | 2 dr. |
| | Tincture of Gentian Root | |
| | Tincture of Ginger Root, of each | 4 dr. |
| | Water | 1 pt. |

Mix and give two tablespoonfuls three times daily, if anæmic.

- | | | |
|------|------------------------------|-------|
| (19) | Tincture of Chloride of Iron | 4 oz. |
|------|------------------------------|-------|

Ten to twenty drops may be given three times daily on a little grain feed.

- | | | |
|------|---|-------|
| (20) | Powdered Nux Vomica | 2 dr. |
| | Powdered Bicarbonate of Soda | 2 dr. |
| | Powdered Golden Seal | |
| | Powdered Ginger Root | |
| | Powdered Gentian Root, equal quantities | 6 dr. |

Mix thoroughly; divide into twelve powders, and give one powder three times daily in a little water, as a drench. This mixture is to be used when the sheep continues to be dull, as if the nerves needed strengthening.

CONDITION POWDERS FOR SHEEP

- | | | |
|------|--|-------|
| (21) | Sulphate of Iron | 1 oz. |
| | Powdered Gentian Root | 4 oz. |
| | Powdered Willow Charcoal | 4 oz. |
| | Powdered Fenugreek | 1 oz. |
| | Powdered Nitrate of Potash (saltpeter) | 4 dr. |
| | Linseed Meal | 4 oz. |

Mix all well together. Give one tablespoonful in feed once or twice daily.

TONIC FOR ANÆMIA

- | | | |
|------|-------------------------|-------|
| (22) | Sulphate of Iron | 2 oz. |
| | Common Salt | 4 oz. |
| | Gentian Root, powdered | 4 oz. |
| | Licorice Root, powdered | 8 oz. |

Mix thoroughly and give one tablespoonful twice a day in grain feed, dampened.

Dogs.

(23) Pill of Citrate of Iron and Quinine, 1 grain each.

Give a pill three times daily, for a small dog; double as much for a collie, pointer, or setter. A good general tonic; useful after distemper.

(24) Bland's Pills.

Give a pill morning and night to a medium sized dog; one-half one to small animals. A good general tonic; useful when the dog is not eating well or has pallidity of the membranes.

(25) Tincture of the Chloride of Iron, 4 oz.

For a medium sized dog give eight drops, three times daily. It is a good appetizer and helps to make red blood. It, however, blackens the teeth, temporarily; and when it is being taken a small dose of oil will probably have to be given occasionally.

Fever Mixtures

Horses.

(26)	Sweet Spirits of Niter	7 oz.
	Fluid Extract of Belladonna	1 oz.
	Sulphate of Quinine	40 grs.
	Dilute Sulphuric Acid	40 m.

Mix all in a bottle and shake until the quinine is dissolved. The dose will be two ounces of the mixture given in a tumblerful of cold water, three or four times daily.

Cattle. The same as for horses.

Sheep.

(27)	Sulphate of Quinine	40 gr.
	Tinct. of Citrate of Iron	4 dr.
	Whiskey	7½ oz.

Mix well together. Shake the bottle and give two tablespoonfuls at a dose, in half pint of molasses and water, each four hours, to an adult sheep — less in proportion to age and size. To be used in Pneumonia.

(28)	Fluid Extract of Belladonna	2 dr.
	Sweet Spirits of Niter	2 oz.
	Muriate of Ammonia	4 dr.
	Water	6 oz.

Mix well together and give one tablespoonful at a dose, in one third pint of molasses and water, every two hours.

Dogs.

(29)	Calomel	4 gr.
	Sub-nitrate of Bismuth	72 gr.
	Phenacetine	48 gr.

Mix well together and divide into twenty-four powders, of which one may be given to a fox terrier as often as each two hours, for not exceeding two days, when the powder, if there is further need, may be given three times daily. Larger dogs will require double the dose or more. To be given dry on the tongue.

(30)	Tincture Aconite Root	20 m.
	Sweet Spirits of Niter	6 dr.
	Bromide of Potash	4 dr.
	Liquid of the Acetate Ammonia	4 oz.

Mix well together. Give a teaspoonful every two hours, in a little cold water.

Electuaries

Medicines in this form are to be used when, from soreness of the throat or otherwise, the animal is unable to swallow. The method of administration is by pressing the quantity onto the outside of one of the back teeth, from which it is slowly dissolved.

(31)	Extract of Belladonna	1 oz.
	Chlorate of Potash	2 oz.
	Licorice, not powdered	5 oz.

Simple syrup, enough to make proper consistency. Mix well together. Use one half ounce of the mass, each two hours, for a horse, same for cattle, and less for sheep and dogs.

Liniments**Soap Liniment — Opodeldoc.**

(32)	Castile Soap in fine Shavings	3 oz.
	Powdered Gum Camphor	1 oz.
	Oil of Rosemary	2 dr.
	Oil of Thyme	1 dr.
	Spirits of Wine	1 pt.

Dissolve the soap and camphor in the spirits of wine and add the oils. This mixture can be obtained much more easily from the druggist. It forms the basis of many other liniments. If rubbed onto the skin its action is mildly stimulating.

Stimulating.

(33)	Soap Liniment	5 oz.
	Turpentine	
	Strong Ammonia	
	Oil of Origanum, equal parts	2 dr.

Shake well together in a bottle. This is the best all-round stimulating liniment, and can be used upon all the animals.

Camphorated Oil.

(34)	Camphor	1 oz.
	Sweet oil	3 oz.

Dissolve the camphor in alcohol and add the oil. It is better to obtain this ready made from the druggist.

Aconite Liniment.

(35)	Tincture of Aconite Root	2 oz.
	Sweet Oil	4 oz.
	Creosote	1 oz.

Mix, and shake bottle. This is one of the good liniments for application to a bruise, when the skin is not broken, or to a sprain of any kind. It removes and decreases inflammation, irritation, and pain. Do not use on dogs.

Creosote Liniment.

(36)	Creosote	1 oz.
	Turpentine	1 oz.
	Olive or Sweet Oil	2 oz.

Mix, and shake bottle. This gives relief from pain and is to be used for rubbing upon stiff joints. Do not use on dogs.

For Rheumatism.

(37)	Tincture of Aconite Root	
	Oil of Wintergreen	
	Chloroform, equal parts	1 oz.
	Soap Liniment	5 oz.

Mix, and rub well onto the parts, once or twice daily. Do not use on dogs.

Lotions.

Zinc and Lead.

(38)	Sulphate of Zinc	
	Acetate of Lead, equal parts	6 dr.
	Water	1 qt.

Put the powder into the water and shake the bottle until all lumps are dissolved. Very useful in galls and sores on the skin, in scratches, and for cooling out swollen legs, etc. The bottle must be well shaken frequently while this lotion is being used; and it is better sopped than rubbed on. It should not be used on dogs.

Sulphur Lotion.

(39)	Sulphurette of Potash (liver of sulphur)	$\frac{1}{2}$ lb.
	Water	4 qts.

Pound the sulphur into small pieces; put it into the water; let

it stand, with frequent shaking, for three days, then carefully turn off the clear liquid. The lotion should be of a sherry color. It will not be of that color unless the sulphur used is fresh and good; there is often some little trouble about getting it so. It will kill lice and cure many disorders of the skin in all animals.

For Scratches.

(40)	Impure Carbonate of Zinc	2 oz.
	Powdered Alum	1½ oz.
	Precipitated Chalk	10 oz.
	Creosote	1½ oz.
	Beeswax	1½ oz.
	Lard	15 oz.

The lard and wax are to be melted together and the powders are then to be stirred into it. All must be well mixed and should be stirred, while cooling, often enough to keep it so. Besides being useful in scratches it also answers a good purpose when any ointment of zinc is required; and in certain forms of eczema, except in dogs. It should be applied twice daily.

Sulphur Ointment.

(41)	Flowers of Sulphur	2 oz.
	Carbonate of Potash	1 oz.
	Lard	8 oz.

Mix well together. Is useful in many skin diseases.

For Itching Skins.

(42)	Thymol	15 gr.
	Alcohol	2½ dr.
	Glycerine	5 dr.
	Water enough to make	1 pint.

Mix and rub well onto the parts twice daily.

Loss of Appetite in Horses and Cattle.

(43)	Fluid Extract of Red Pepper	2 dr.
	Fluid Extract of Golden Seal	3 oz.
	Fluid Extract of Nux Vomica	3 oz.

Mix. Dose, two teaspoonfuls on tongue three times a day.

Hoof Ointment.

(44)	Mutton Tallow	2 oz.
	Resin	2 oz.
	Barbadoes Tar	2 oz.
	Yellow Wax	1 oz.
	Castor Oil	1 oz.

Melt all together over a slow fire. If it is desired to have it rather soft, when the mixture is entirely melted stir in eight ounces of raw

linseed oil. This mixture, if used on the hoofs daily, will keep them in good growing condition and make them look well.

Solution of Argyrol for Inflamed Eyelids.

(45)	Argyrol	24 m.
	Water	1 oz.

Mix. Use two drops three times daily.

Solution of Lysol.

(46)	Lysol	50 m.
	Water	8 oz.

Mix. Use freely in dressing sores, wounds, etc.

Hair Grower.

(47)	Balsam of Peru	4 dr.
	Tincture Spanish Fly	4 dr.
	Castor Oil	1 oz.
	Lard	1 oz.

Melt the lard, add the oil and other ingredients. It will cool into a soft ointment, which may easily be well rubbed onto the parts, once a day.

Vomiting Powders for Dogs.

(48)	Sub-nitrate of Bismuth	30 gr.
	Oxalate of Cerium	30 gr.

Mix well together and divide into ten powders. Give a powder each two to four hours as required.

Alterative Powder.

(49)	Flowers of Sulphur	4½ oz.
	Saltpeter, powdered	4½ oz.
	Black Antimony	12 dr.

Mix and divide into twelve powders. Give a powder on damp grain feed, or in cupful of molasses and water, morning and night. These powders will give good results when the skin is in an unhealthy condition, or with little "boils" upon it, in horses.

Ichthyol Ointment.

(50)	Ichthyol	1 dr.
	Lard	1 oz.

Mix well; and use on small patches of eczema. Or in long-haired dogs a lotion may be of easier application. Substitute one ounce of raw linseed oil for the lard; or one ounce of water may be used instead of the oil.

Antidotes for Poisons.

First. Send for a veterinary surgeon.

Second. Induce vomiting in dogs by the use of mustard. To the other animals give raw linseed oil, whites of eggs, and milk. These last may also be given to dogs.

Special Poisons.

Acids of any kind. Give soap-suds, magnesia, lime water.

Prussic Acid. Ammonia in water. Dash cold water onto the head.

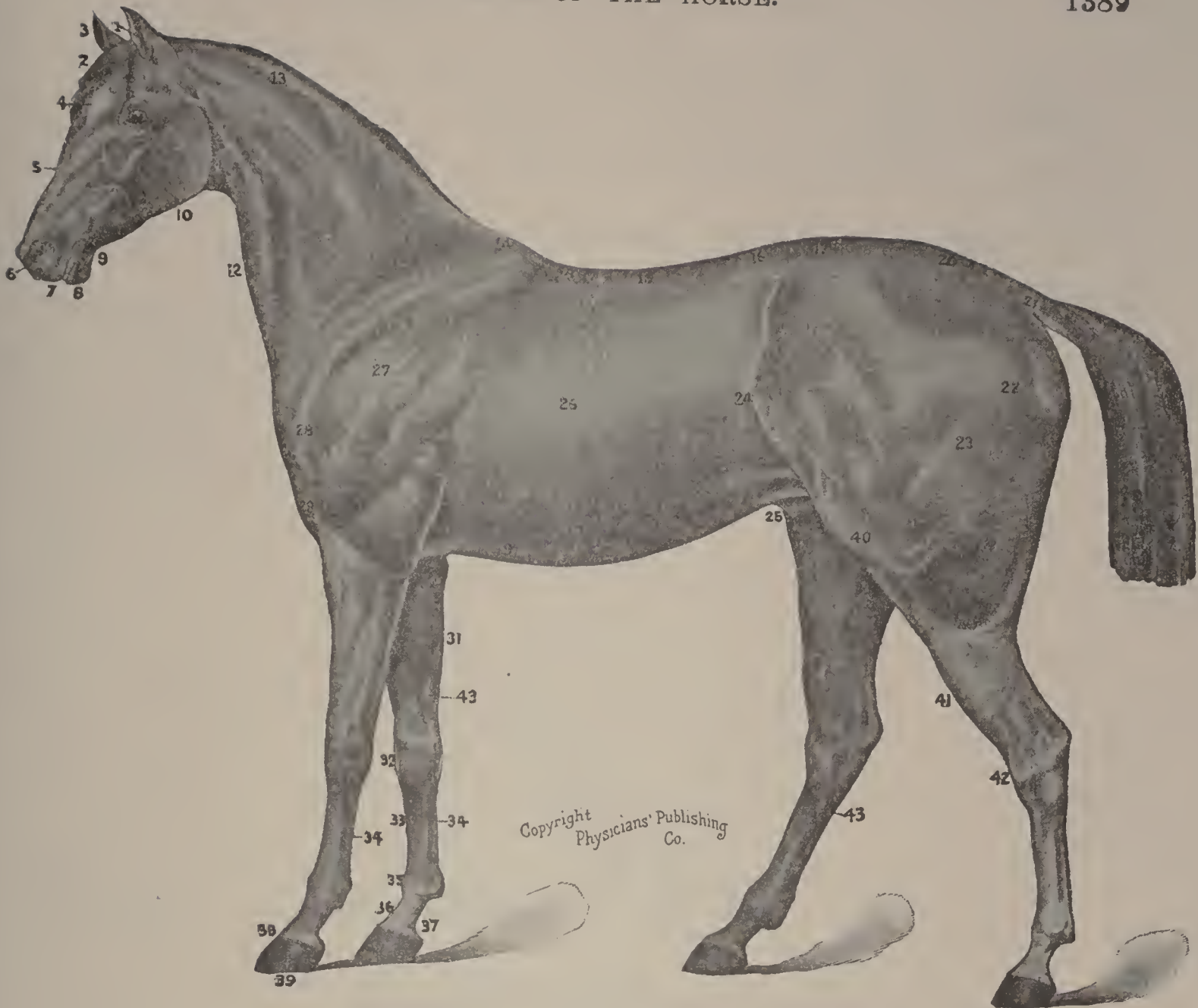
Carbolic Acid. Whites of egg, flour and water.

Potash, Lye, Ammonia. Vinegar and water.

Arsenic, Paris Green. Whites of eggs, oil, lime water, flour and water.

Iodine. Starch and water, strong tea.

Opium. Strong coffee, and keep animal moving.



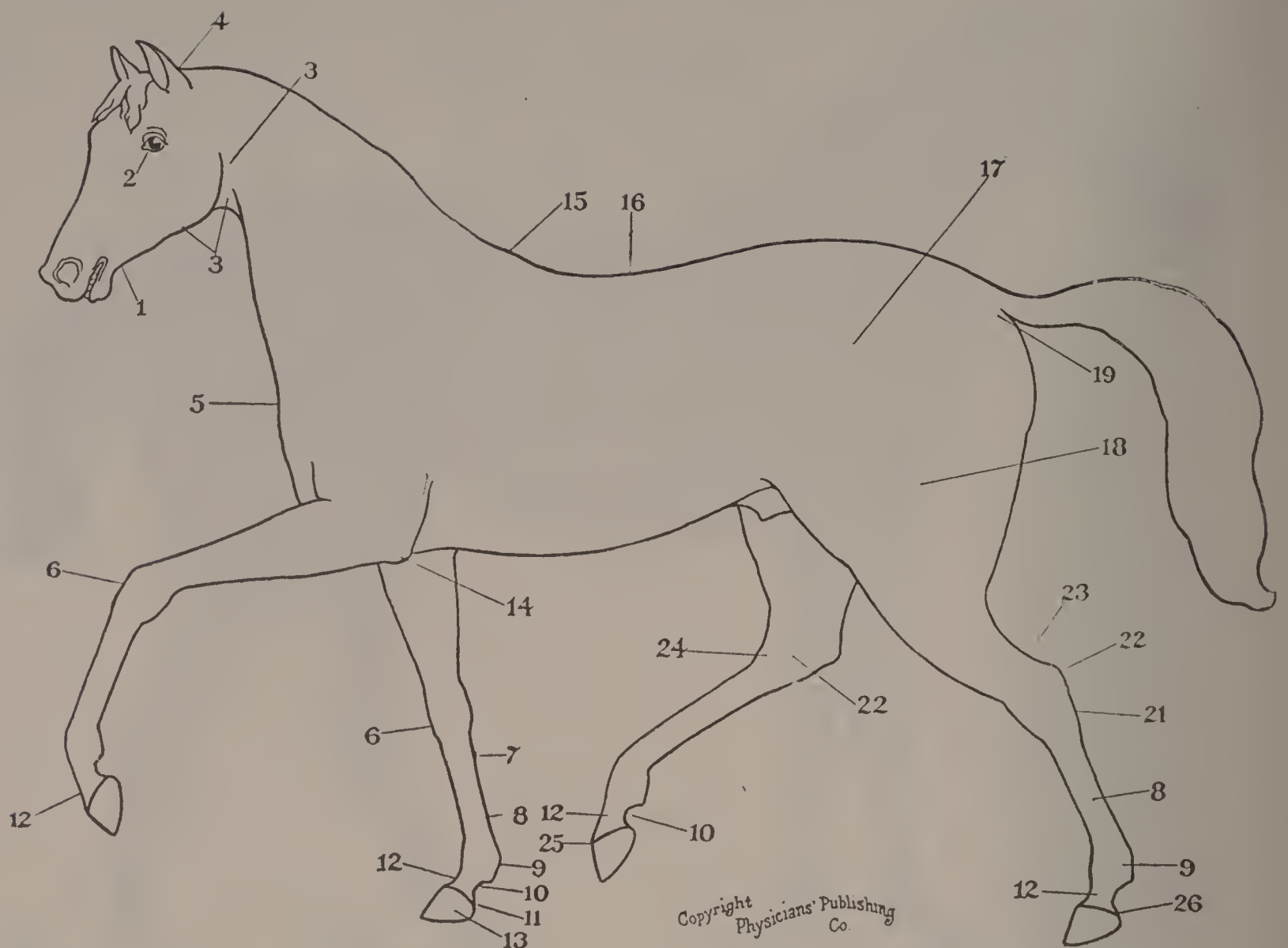
POINTS OF THE HORSE.

The points of the horse will well repay the effort of committing to memory by any one who wishes to be a good judge of a horse. For through a knowledge of their values it is possible to say by simply looking over an animal, while he is standing, for what kind of work he is best adapted and, to some extent, how good he may be in his class.

PLATE I.

1. Poll. 2. Forelock. 3. Ear. 4. Forehead. 5. Face. 6. Nostril.
7. Upper lip. 8. Under lip. These two together form the muzzle.
9. Under jaw. 10. Jowl. 11. Throttle. 12. The windpipe.
13. The crest. 14. The withers. 15. The back. 16. The coupling or loins.
17. Summit of the croup. 18-19. The girth. 20. The croup.
21. The dock or root of the tail. 22. The whirl-bone, or hip-joint.
23. The quarters. 24. The flank. 25. The sheath.
26. The barrel. This is composed of the chest in front and lying under the ribs, and the belly or abdomen lying behind the ribs and extending to the flank.
27. The shoulder. 28. The point of the shoulder.
29. The counter or breast. This extends from side to side across the front of the animal.
30. The elbow. The parts lying between numbers 28 and 30 constitute the arm.
31. The forearm. 32. The knee. 33. The cannon.
34. The back tendons or cords. 35. The fetlock or large pastern-joint.
36. The pastern. 37. The heel. 38. The coronet. 39. The hoof.
40. The stifle-joint. 41. The gaskin or thigh. 42. The hock. 43. Chestnut.

The further names and locations of the points below the hocks are the same as those given for the front legs.



Copyright
Physicians' Publishing
Co.

PROMINENT ILLS OF THE HORSE.

1. Dead bone in the lower jaw,
2. Cataract. Cloudy outer covering, or the disease of eye.
3. Abscess of salivary glands of throat or under the jaw.
4. Poll evil. Caused by pressure of bridle or other bruise of the part. The swelling may be upon either or both sides of the mane.
5. Swelling or open sore caused by collar pressure. If solid and unopened called "cold abscess." Can't be cut out; treatment difficult; call V. S.
6. Injury to knee from falling.
7. Strain of "check" ligament. Small swelling over back tendon on inside leg; quite sore on pressure.
8. Strain of tendons, lifting foot backward, or of suspensory ligament. The ligament lies between the back tendons and the bone.
9. Inflammation where ligament passes over little bones, just above and behind fetlock-joint. Looks like "windgall," but is much harder when weight of horse is upon the leg.
10. Scratches and grease-heel.
11. Quittor. Also open sore coming from "corn" in the foot; both are open sores discharging more or less pus. A quittor may be caused by tread wound of coronet.
12. Seat of ringbone.
13. Quarter-crack. Begins at hair and moves to ground surface of hoof, on inside.
14. Shoe-ball. Larger or smaller swelling over elbow; may be hard or soft, open or unopen, through skin.
15. Fistula of withers. Larger or smaller swelling to one or other side, or covering the whole top of the spines of the backbone of the part.
16. Hard, smaller or larger swelling directly on top of spines of the backbone

of the part; coming from pressure of riding saddle. It may be more or less tender upon pressure.

17. Gall of the hip. Pin-hipped or flat-hipped, in which more or less of one of the edgebones is broken and a flat appearance given to the part.

18. Tumor on end of cord following certain castrations. Surgical operation for its removal is the only remedy.

19. Rectal fistula. Discharges blood and pus in larger or smaller quantities. Surgical operation only remedy.

20. Capped hock.

21. Seat of curb.

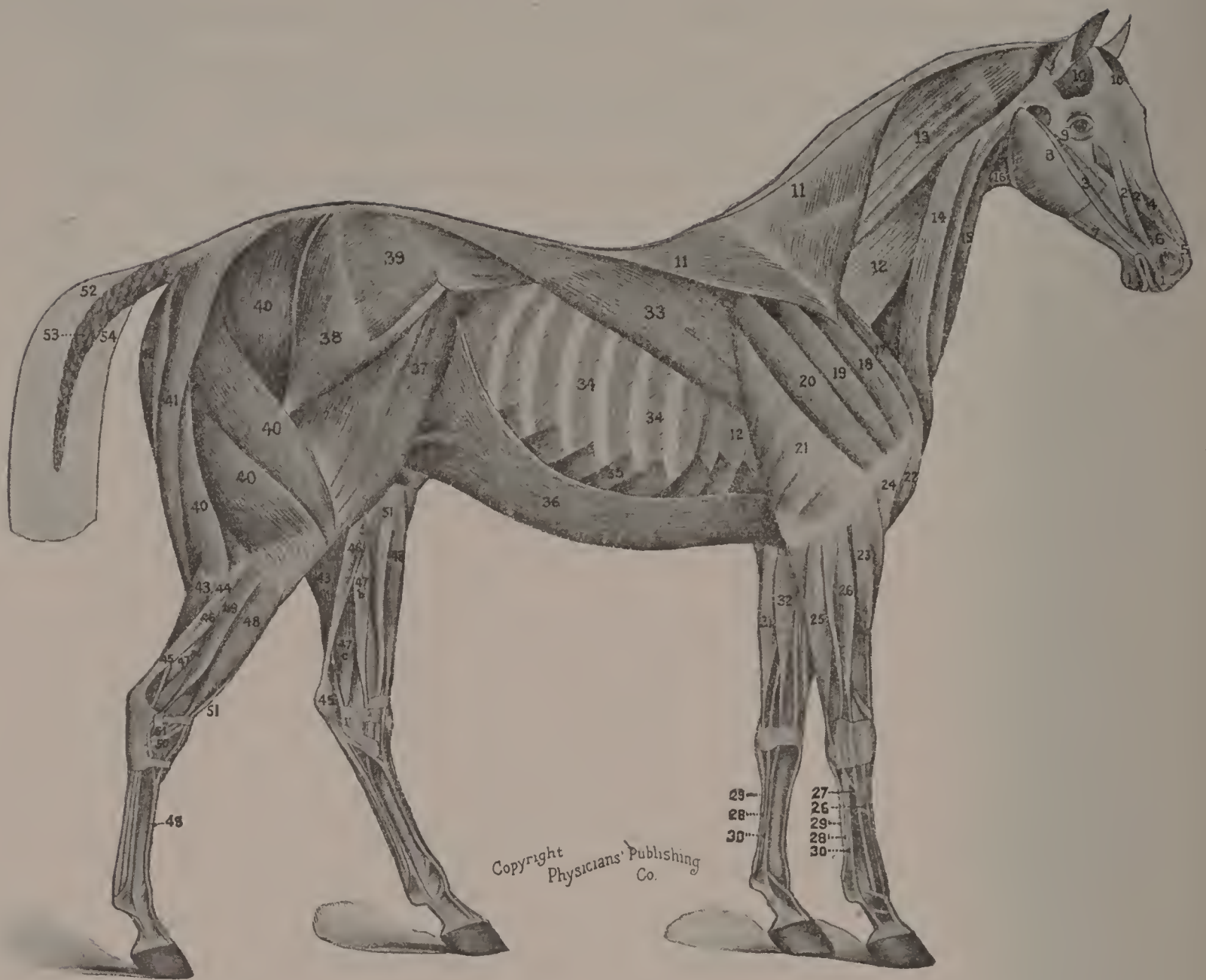
22. Seat of bone spavin.

23. Thoroughpin.

24. Bog spavin.

25. Toe or sand-crack. Directly in the toe of hoof, beginning at hair and extending downward to ground surface of hoof.

26. Trend wound; may result in quittor.



MUSCLES OF THE HORSE.

First. There is a large muscle lying just under the skin, and attached to it, which is called the "panniculus," the action of which is to twitch the skin, as for the purpose of removing insects, etc.

Second. The outer layer of muscles called superficial layer, after that a deeper layer which assists the superficial layer in action. These work together so that if a failure of full and normal action occurs in a given part, some idea may be obtained as to which of the muscles are affected. It is by careful observation only, of the movements of the different parts, while the horse is in slow trotting action, that the seat of lameness can be discovered, oftentimes. As, for instance, to know whether a certain lameness is located in the foot or the shoulder:

1. *Orbicularis Oris.* Compresses the lips, also assists in chewing, drinking, and the gathering of food.
2. *Levator labii superioris alæque nasi.* Raises the upper lip and angle of the mouth and dilates nostril.
3. *Zygomaticus.* Retracts the angle of the mouth.
4. *Nasalis Longus.* Elevates and wrinkles the upper lip.
5. *Dilator Naris Transversalis.* Dilates the nostrils.
6. *Dilator Naris Lateralis.* Dilates the nostril, acting on its external wing.
7. *Depressor Labii Inferioris.* Depresses the under lip.
8. *Masseter.* Elevates the lower jaw and closes the mouth, important in chewing.
9. *Obicularis Palpebrarum.* Closes the eyelids.
10. *Temporalis.* Assists in closing the mouth, gives good assistance to No. 8 in chewing.

11. *Trapezius, cervicalis and dorsalis*. The first named portion draws the shoulder upward and forward; the second, upward and backward.
12. *Serratus Magnus*. Raises the head when the horse stands still; in action it draws the shoulder-blade down.
13. *Splenius*. One alone is used draws the head to one side; if both are used they raise the head.
14. *Levator Humeri*. When the head is held still it advances the entire limb; if the legs are still and the muscle on one side only is used it draws the head and neck to that side. If both are used together the head and neck are drawn down.
15. *Sterno-Maxillaris*. Both acting together brings head downward. One alone acting turns the head downward or to either side.
16. *Sub-Scapulo-Hyoideus*. Its action is to pull the roots of the tongue downward or backward.
17. *Pectoralis Parvus*. Assists in drawing the shoulder-joint backward.
18. *Antea Spinatus*. It serves, as do other muscles of the part, in being an active ligament of the shoulder-joint.
19. *Postea Spinatus*. Helps to draw the arm outward, in progression.
20. *Teres Externus*. When acting with the *teres internus*, lying under it and not shown in the diagram, it bends the shoulder-joint backward. When acting alone pulls the arm outward, helping No. 19.
21. *Triceps Extensor Brachii*. Its action is to advance the forearm.
22. *Pectoralis Magnus and Anticus*. Action to draw the shoulder back and the arm towards the body.
23. *Extensor Metacarpi Magnus*. It carries the knee forward.
24. *Humeralis Obliquus*. Flexes the elbow-joint.
25. *Flexor Metacarpi Externus*. It bends (flexes) the knee.
26. *Extensor Pidis*. Extends the small bones just above the hoof upon each other, and helps to extend the knee.
27. *Extensor Suffraginis*. Assists No. 26 in extending the foot.
- 28 and 29. Tendons of *Flexors Perferans* and *Perforatus*. Their chief action is to flex all joints below the knee.
30. *Suspensory Ligament*. Running from lower bones of the knee, joining the tendon of the *Extensor Pidis*.
31. *Flexor Pidis Perforans and Perforatus*. Same as 28 and 29.
32. *Flexor Metacarpi Internus*. Assists No. 25.
33. *Latisimus Dorsi*. In action it elevates the humerus and bends the shoulder-joint backward. When the horse is standing still it helps to force air from the lungs.
34. *Intercostales*. Their action draws air into the lungs.
35. *Obliquus Abdominis Externus*. Help to support the bowels; in action they compress the bowels and assist in defecation, urination and parturition, flex the backbone, and by compressing the belly aid greatly in forcing air out of and into the lungs.
36. *Rectus Abdominis*. Helps to support the contents of the abdominal cavity.
37. *Tensor Fasciæ Latar*. Lifts the thigh-bone upward.
38. *Gluteus Maximus*. Draws the thigh backward and assists in rearing.
39. *Gluteus Externus*. It draws the thigh outward.
40. *Triceps Abductor Femoris*. To draw the thigh backward in action; it assists in rearing.
- 41-42. *Biceps Rotator Tibialis*. Draws the leg backward and outward.
43. *Gastrocnemius Externus and Internus*. Straightens the hocks on the part of the leg, bends the fetlock and pastern joints, and prevents bending of the hock-joint.
44. *Plantaris*. Assists No. 43 very slightly.
45. *Tendo Achilles*. The tendon of No. 43. Passes over point of the hock, and is seat of capped hock.
46. *Flexor Pedis Accussorius*. It assists No. 47.
47. *Flexor Pedis Perforans*. Assists in advancing or bending the hock-joint and bends backwards the fetlock and pastern joints.
- 47a. Lateral division of No. 47.
- 47b. Middle division of No. 47.
- 47c. Large division of No. 47. They all assist No. 47.
48. *Extensor Pedis*. It carries forward the foot and small bones just above it, and assists bending the hock-joint.
49. *Peroneus*. It assists No. 48.

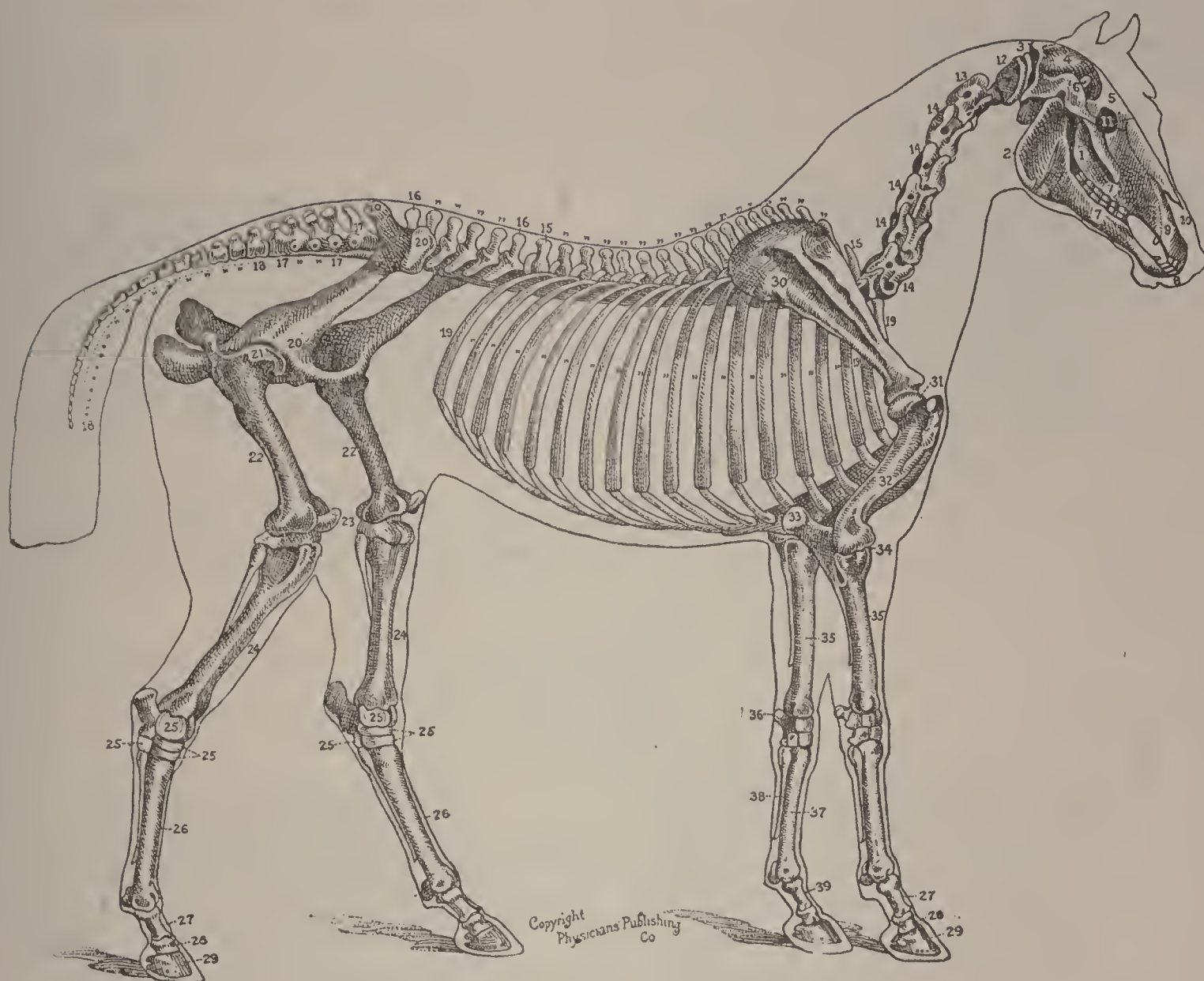
50. *Extensor Pedis Porevis*. It assists slightly in advancing the foot.

51. The tendon of No. 48 through which assistance is given in bending the hock-joint.

52. *Erector Coccygis*. When those on both sides act together the tail is raised up — one alone, upward and to one side or other.

53. *Curvator Coccygis*. To curve the tail and draw it sideways.

54. *Depressor Coccygis*. Acting together bend the tail downward.



SKELETON OF THE HORSE.

1. Upper jaw.
2. Lower jaw.
3. Occiput (the high point between the ears).
- 4-6. Small bones helping to form the bony covering of the brain.
7. Upper and under, back, double, or molar teeth; six in each jaw on each side; twenty-four in all.
8. Front teeth or incisors; six in each jaw; twelve in all.
9. Tusks or canine teeth; two in each jaw; four in all. Mares sometimes do not have these teeth. The full mouth of a horse contains forty teeth.
10. The nasal bone.
11. The eye socket or orbital cavity; the bony prominent ridge above this is called the orbital arch; while, through the bone below, the tear duct runs from the eye socket into the nostril.
12. The atlas, the wings of which form the bony ridges, one each side, just behind the ears.
13. The dentata, the second bone of the neck, which has a long projection into a cavity in the atlas. This furnishes the pivot upon which the head turns.
14. The seven remaining fine bones of the neck or vertebræ.
15. Superior spines of the back (dorsum), all of them having "bodies" from which the ribs spring; eighteen in number.
16. Other bones of the back, called lumbar vertebræ, to which the short ribs are attached; six in number.
17. Bones of the back, called the sacrum. This has six segments joined together and giving no flexibility to the parts. Numbers 15-17 make up the backbone.
18. Bones of the tail or coccy.
19. The ribs, eighteen in number, on each side. The first eight, joined almost

directly to the breast-bone, are called true, the last ten, joined to that bone, are called the false ribs.

20. The edge or pelvic bones. This is framework through which the hind limbs are joined to the body. It consists of three different bones on each side, but they are so firmly joined together as to be, practically, one bone. This bone contains the deep sockets into which the large rounded head of the hip-bones enter to form the whirl-bone or hip-joint at Fig. 21.

22. The thigh, hip, or femur bone.

23. The stifle-joint. This is made up of the two large bones, working like a hinge, together with a little bone. The stifle-bone, like the human knee pan, which, placed outside the weight-bearing column, slides up and down to facilitate movement.

24. The leg or gaskin bones (called also the tibia and fibula).

25. The hock or gambrel. This is made up of six small bones. The true or hinge-joint is between the gaskin and shank-bones. The office of the small bones is to glide one upon the other and prevent too much concussion of the part, in action.

26. The shank, cannon, or metatarsal bone, running from the hock down a little way on the outside and inside of each cannon, are called the splint-bones. The small bones shown at the lower end and back of the cannons are not in the weight-bearing column, but are simply used as a fulcrum over which the back tendons glide; they are called sesamoids.

27. The large pastern-bone.

28. The small pastern-bone.

29. The foot or pedal bone; it is entirely contained within the hoof and follows it in shape. Behind this, not in the weight-bearing column, is a small bone running across the foot, not shown in the diagram, called, from its shape, the coffin-bone, also the navicular bone. It is back of the pedal bone, and furnishes a fulcrum over which the back tendon glides.

30. The shoulder-blade or scapular.

31. The shoulder-joint.

32. The arm-bone or humerus.

33. The elbow or ulner runs a part of the way down the forearm and is attached to it.

34. Elbow-joint.

35. The forearm or radius.

35. The forearm or radius.

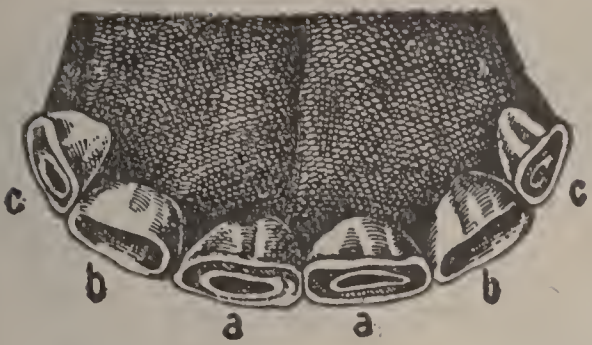
36. The knee or carpus, is formed by the lower end of the forearm and seven, or sometimes eight, small bones, and the upper end of the cannons. The small bones have very limited action, but tend largely to overcome the effects of concussion.

37. Shin or cannon or metacarpal bone.

38. Splint bones.

39. Same as described for hind limbs.

Teeth of the Horse.



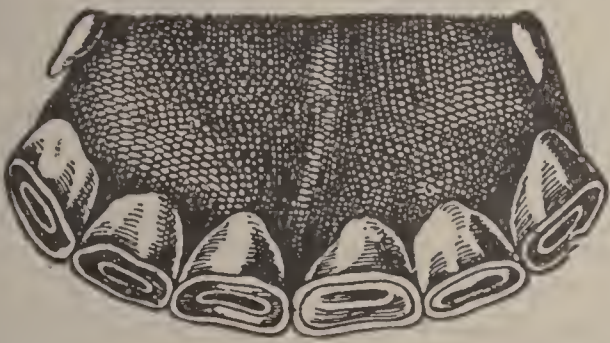
FOUR YEARS OLD.

The nippers, *aa*; permanent teeth, *bb*; end teeth, *cc*, are milk teeth.

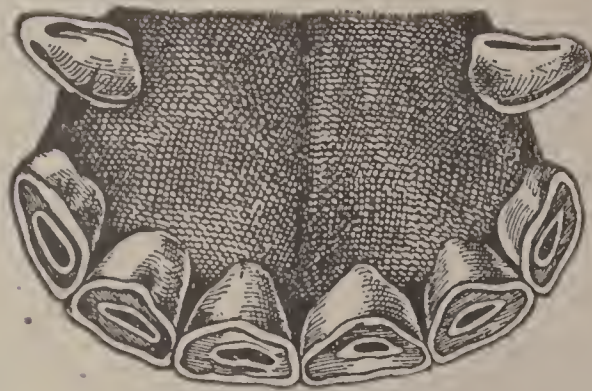


FIVE YEARS OLD.

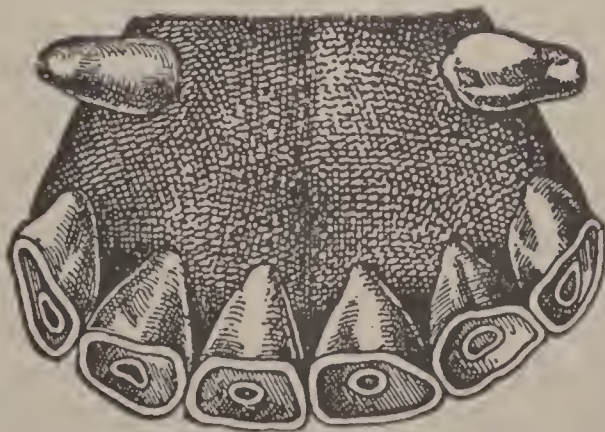
The teeth have changed.



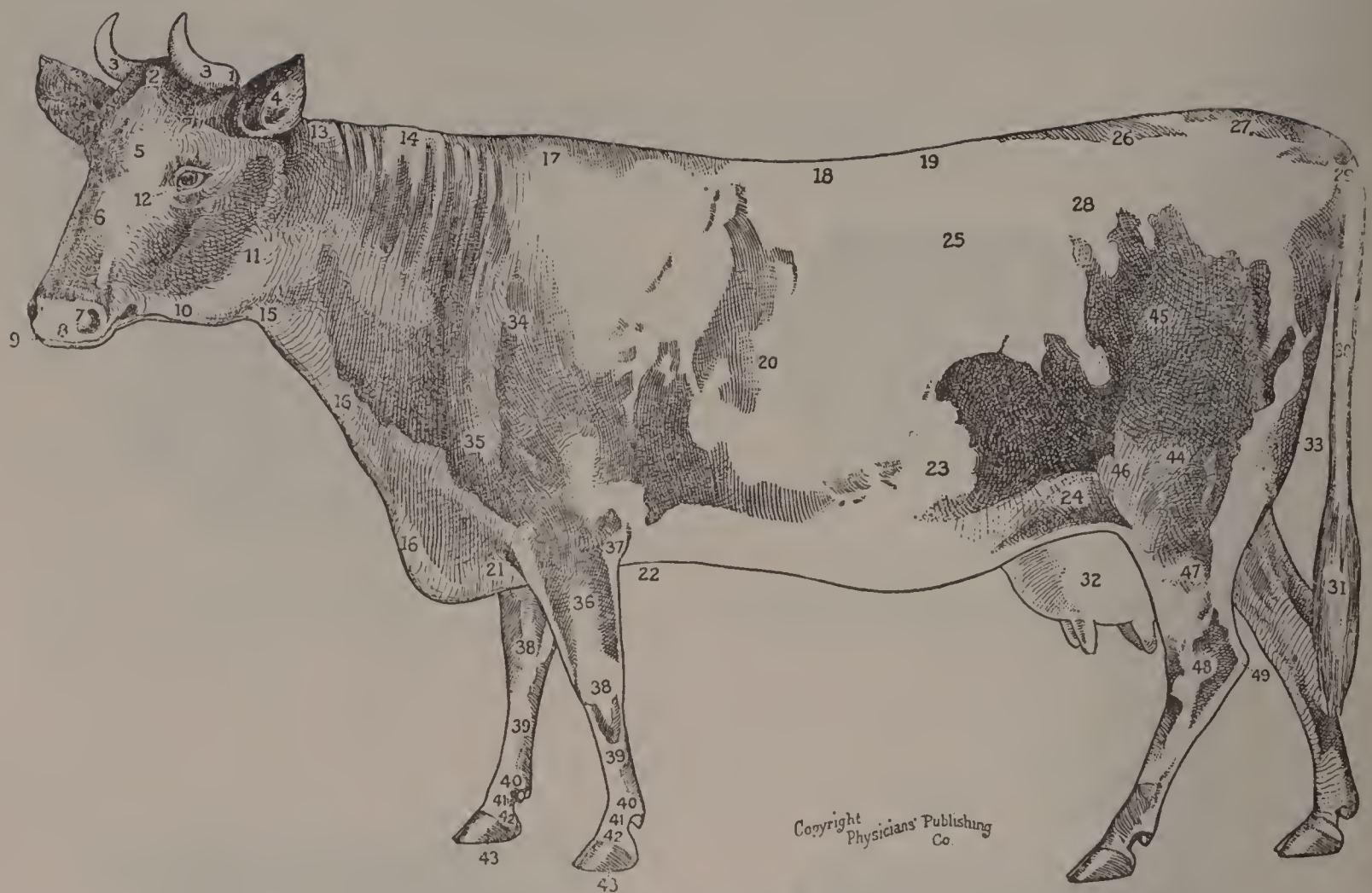
EIGHT YEARS OLD.



TEN YEARS OLD.



FIFTEEN YEARS OLD

Copyright
Physicians Publishing
Co.

EXTERIOR OF THE COW.

(With numbers showing the various parts.)

HEAD.

1. Back of head.
2. Frontal crest.
3. Horns.
4. Ears.
5. Forehead.
6. Face.
7. Nostrils.
8. Mouth, with upper and lower lips.
9. Chin.
10. Throat.
11. Cheeks.
12. Eyes and eyelids.

NECK.

- 13, 14. Nape of the neck.
15. Throat. 16. Dewlap.

TRUNK.

17. Withers. 18. Back.
19. Loin, or kidney region.
20. Walls of chest. 21, 22. The brisket.
23. Belly. 24. Flanks.
25. Upper part of flank. 26. Rump.
27. Croup. 28. Haunches.
29. Root of tail. 30. Tail. 31. Tuft.
32. Udder, with the teats.
33. The buttock.

FORE LIMBS.

34. Shoulder.
35. Point of shoulder. 36. Forearm.
37. Elbow. 38. Knee. 39. Shin.
40. Fetlock-joint, with the dew-claws.
41. Pastern. 42. Coronet. 43. Hoofs.

HIND LIMBS.

44. Upper thigh. 45. Hip-joint.
46. Stifle-joint. 47. Lower thigh.
48. Hock. 49. Point of hock.

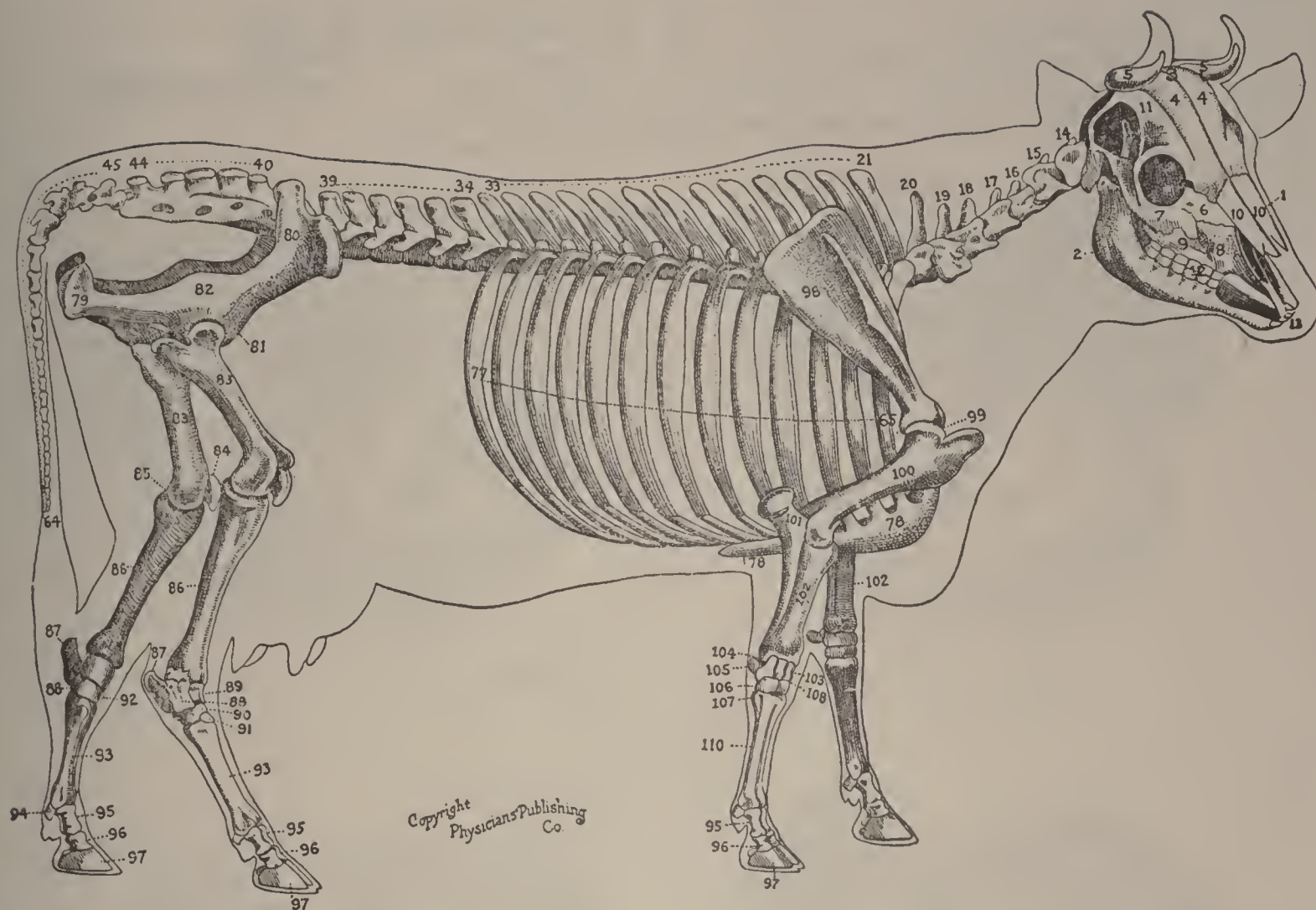
From the hock downwards, the descriptions are the same as in the fore-limbs.

VALUE OF THE VARIOUS PARTS FOR BEEF.

The prime parts of the animal, for beef, are embraced between a line that may be drawn from numbers 34 and 29, thence to 45 and back to 34.

The second best are between 34-45-33-24, 23 and 37.

The ribs below a line drawn from 34 to 45; the flanks 23 to 24, and the thinner parts lying just above a line so drawn and thence to 21 and 16, the brisket, are good corning pieces. Between 45 and 47 are valuable pieces for smoked or dried meat.



SKELETON OF THE COW.

1. Upper jaw.
 2. Under jaw.
 3. Occipital bone. This bone helps to form the high ridge between the horns.
 4. Frontal bones.
 5. The bony horns. The horns themselves fit upon the outside of these; there is also a communication from the inside of the frontal-bone to the inside of the bony horn.
 - 6-11. Small bones going to make up the face and jaw.
 12. Upper and under back, double, or molar teeth.
 13. Front or incisor teeth. There are six double or back teeth on each side of each jaw, twenty-four in all. The under jaw contains eight front teeth, while there are no upper front teeth in this animal, their places being filled by a heavy gristly or cartilaginous pad against which the under teeth press the food. The mouth contains thirty-two teeth; twenty-four back and eight front.
 - 14-20. The bones of the neck.
 - 21-33. Spines of the first thirteen bones of the back; the dorsal vertebræ. Between each one is a joint, to each of which a rib is attached, allowing the necessary movement of the ribs in breathing.
 - 34-39. Other bones of the back, called lumbar vertebræ, to which the so-called short ribs are attached.
 - 40-44. Other of the backbones, called the lumbar vertebræ, are solidly joined together, allowing no motion between them. The bones 14 to 44 make up the backbone.
 - 45-64. Bones of the tail.
 - 65-77. The ribs. The first eight are called true, the last five false, ribs.
 78. Breast-bone or sternum; a rather soft bone to which the prolongations from the ribs are attached.
 79. Ischium.
 80. Illium.
 81. Pubis.
- These bones make up the edgebones, the pelvis.

THE LIMBS.

- | | | | |
|-----------------------|-------------------------|-------------|-------------------|
| 82. Hip-joint. | 83. Thigh-bone (femur). | 84. Patula. | 85. Stifle-joint. |
| 86. Leg-bone (tibia). | 87. Heel-bone (calcis). | | |

- | | |
|---|--|
| 88. Hock-joint | 89-92. Small bones of the hock. |
| 93. Shank-bone (metatarsal). | 94. Sesamoid. 95. Pastern. |
| 96. Coronet-bone. | 97. Hoof-bones (pedal-bone). 98. Shoulder-blade. |
| 99. Point of shoulder (shoulder-joint). | |
| 100. Arm. | 101. Elbow-bone (ulna). |
| 102. Forearm (foreleg — radius). | |
| 103. Knee. | 104-108. Small bones of the knee-joint. |
| 110. Shank (metacarpal). | |

The remaining bones of the fore extremity are named the same as those described for the hind leg and feet.

Fuller descriptions of some of these bones will be found in connection with the description of the bones of the horse; their descriptions and functions being alike.

Teeth of the Cow.



TEETH OF A CALF AT BIRTH.



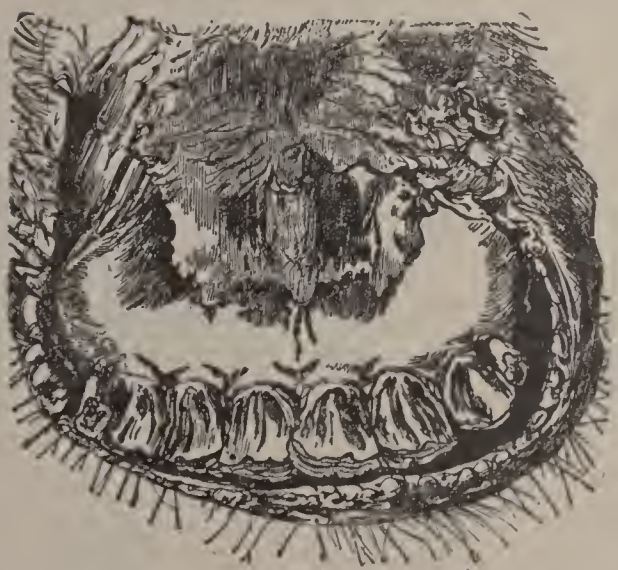
SIX WEEKS OLD.



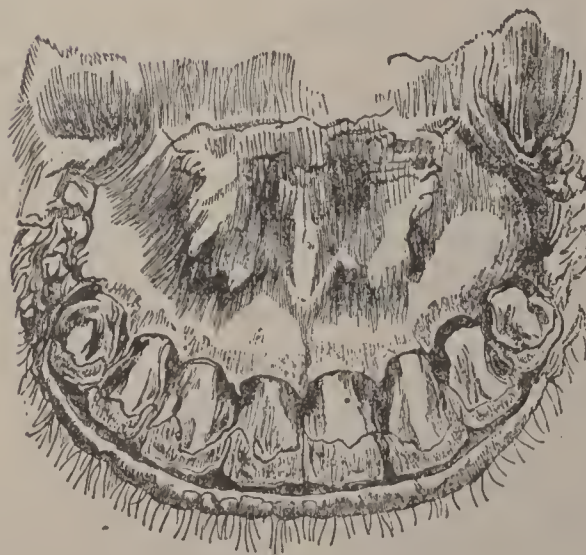
ONE YEAR OLD.



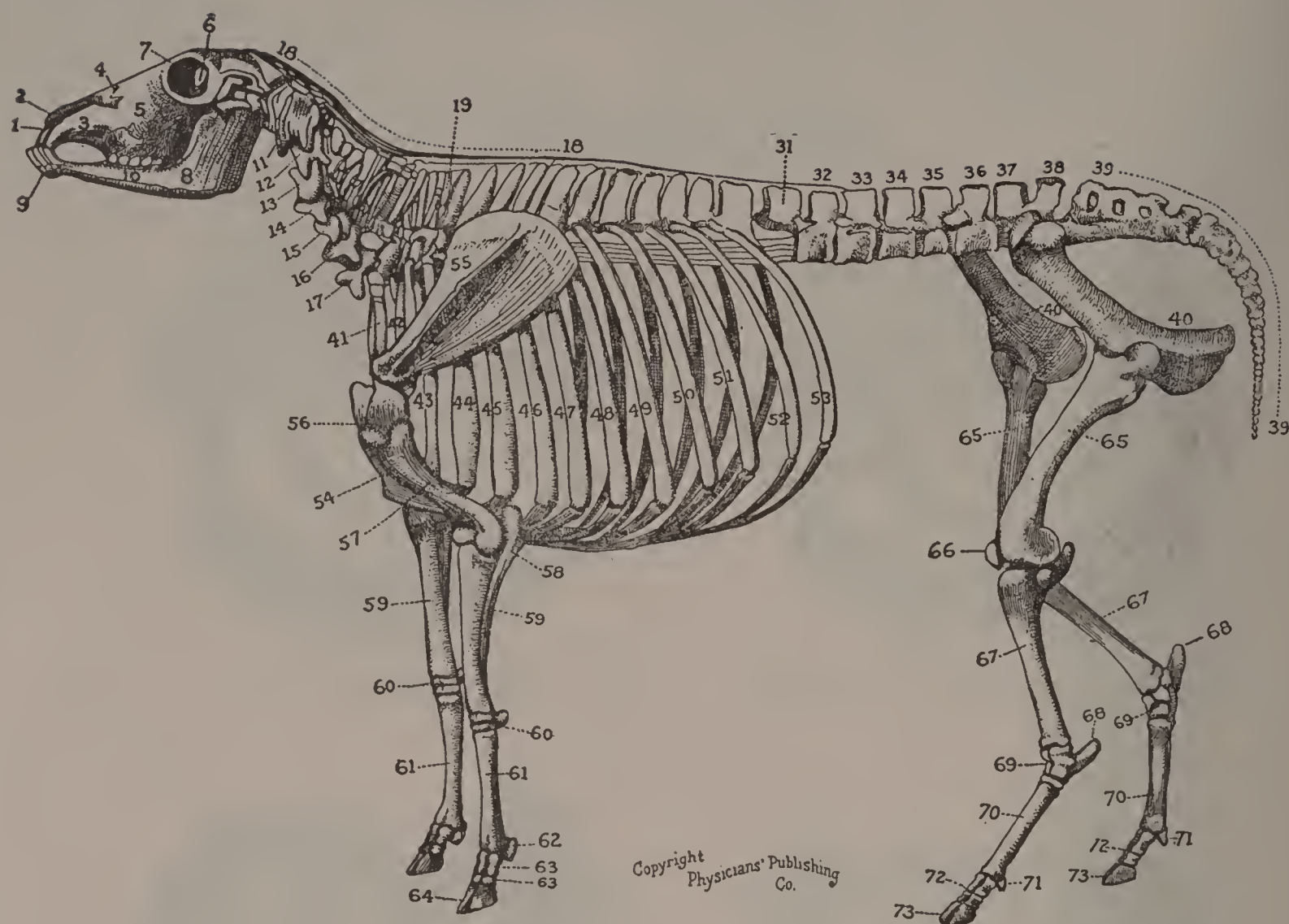
TWO YEARS OLD.



TWO YEARS AND SIX MONTHS
OLD.

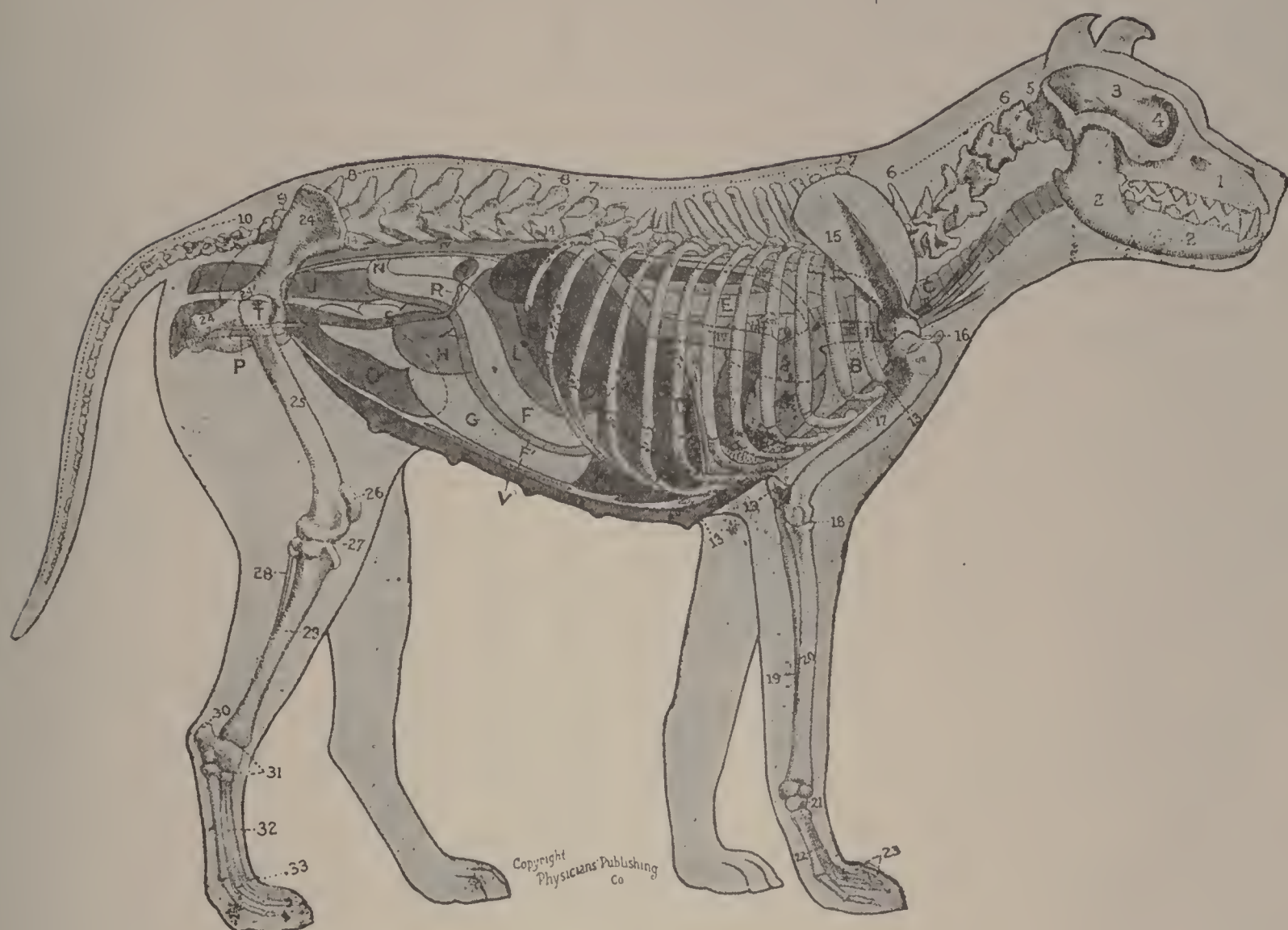


SIX YEARS OLD.



SKELETON OF THE SHEEP.

- | | | |
|---|--|---|
| 1. Intermaxillary bone. | 32—37. The six vertebræ of the loins. | 60. Knee, with its different bones. |
| 2. Nasal bones. | 38. The sacral bone. | 61. Metacarpal, or shank bones. |
| 3. Upper jaw. | 39—39. The bones of the tail, varying in different breeds from twelve to twenty-one. | 62. One of the sesamoid bones. |
| 4. Union of the nasal and upper jaw-bone. | 40. The haunch and pelvis. | 63. Two first bones of the foot (the pasterns). |
| 5. Union of the molar and lachrymal bones. | 41—48. The eight true ribs, with their cartilages. | 64. Hoof-bones (pedal bones). |
| 6. Orbits of the eye. | 49—53. The five false ribs, or those that are not attached to the breast-bone. | 65. Thigh-bone. |
| 7. Frontal bone. | 54. Breast-bone. | 66. Patella, or stifle-joint. |
| 8. The lower jaw. | 55. Shoulder-blade. | 67. Leg-bone (tibia). |
| 9. Incisor teeth, or nippers. | 56. Shoulder-joint. | 68. Point of the hock. |
| 10. Molars, or grinders. | 57. Arm. | 69. Other bones of the hock. |
| 11—17. The seven vertebræ, or bones of the neck. | 58. Elbow-bone (ulna). | 70. Metatarsal (shank-bone). |
| 18—18. The ligament of the neck, supporting the head. | 59. Bone of the forearm (radius). | 71. One of the sesamoid bones. |
| 19—31. The thirteen vertebræ, or bones of the back. | | 72. Two first bones of the foot (the pasterns). |
| | | 73. Hoof bones (pedal bones). |



SKELETON AND INTERNAL ORGANS OF THE FEMALE DOG.

- | | |
|--|---|
| 1. Upper jaw. | 19-19. Small bone of the arm and point of the elbow (ulna). |
| 2-2. Under jaw. | 20. Bone of forearm (radius). |
| 3. Bones of the cranium. | 21. Wrist. |
| 4. Bones of the eye socket. | 22. Metacarpal bones. |
| 5. Atlas, or first bone of the neck. | 23. Bones of the toes (phalangeals). |
| 6-6. Other bones of the neck (cervical vertebræ). | 24. Edge or pelvic bones. Three in number on each side; all six are firmly joined together and the sockets of the hip-joints are contained in them, at 24'. |
| 7-7. Dorsal vertebræ. | 25. Thigh-bone (femur). |
| 8-8. Lumbar vertebræ. | 26. Stifle-bone (patilla). |
| 9. Sacral vertebræ. | 27. Stifle-joint. |
| 10-10. Bones of the tail (coccygeal vertebræ). | 28. Small bone of the leg (fibula). |
| 11-11. True ribs. | 29. Leg-bone (tibia). |
| 12. "False rib," so called because it is not connected with the breast-bone. | 30. Point of the hock (os calcis). |
| 13-13. Breast-bone (sternum). | 31. Hock-joint (several small bones enter into its formation). |
| 14-14. "Short ribs" (transverse process of lumbar vertebræ). | 32. Metatarsal bone. |
| 15. Shoulder-blade (scapular). | 33. Bones of the toes (phalangeals). |
| 16. Shoulder-joint. | |
| 17. Arm-bone (humerus). | |
| 18. Elbow-joint. | |
-
- | | | | |
|---------------------------------------|------------------------------------|---------------------------------------|--|
| A. Heart. | B. Right lung. | C. Trachea, or windpipe. | D. Diaphragm. |
| E. Canal from pharynx to the stomach. | F and G. Small intestines. | H. Pouch at head of large intestines. | J. Rectum. |
| K. Liver. | L. Pancreas. | M. Right kidney. | N. Tube carrying urine from kidney to bladder. |
| O. Bladder. | P. Excretory canal of the bladder. | Q. Right ovary. | R. Right Fallopian tube. |
| S. Womb. | T. Vagina. | U. Vulva. | V. Udder. |

Transmittal Certificate

This Certifies that the Bearer being a subscriber to the "**Household Physician**" is entitled as a member of **Physicians Medical Society** for one year from the date of this Certificate and is entitled to receive free, prompt and competent advice from the chief of staff in answer to any query of a medical nature. This further certifies that the Bearer will receive free consultation including prescriptions and medical advice.

In seeking advice and treatment by mail he is requested to state fully and distinctly symptoms of ailment, also full name and post office address. Enclosing two-cent stamp for reply. Address all communications to Chief of Staff, Staff Headquarters, 95. North St. Boston, Mass.

Date _____

Signed _____

Physicians Medical Society.

PRONOUNCING DICTIONARY.—GLOSSARY.

- Ab-do'men.** The belly.
- A-ce-tab'u-lum.** The socket for the head of the thigh bone.
- Ab-dom'i-nal cav'i-ty.** The cavity of the belly.
- Ab-duc'tor.** A muscle which draws one part of the body towards another.
- Ab-sor'bents.** Glands and vessels which absorb or suck up substances from within or without; also, medicines which, though nearly or quite inactive themselves, absorb, or combine with acid matter in the stomach or bowels.
- A-cro'mi-on.** That part of the scapula, or shoulder-blade, which unites with the collarbone.
- Al-bu-gin'e-a.** The white of the eye.
- Al'ter-a-tives.** Medicines which gradually reëstablish health, without sensibly increasing the circulation, or augmenting the perspiration, urine, or other excretions.
- Al've-o-lar.** Relating to the sockets of the teeth.
- Al'vine (Al'vin).** Relating to the intestines, as *alvine discharges*,—discharges from the bowels.
- A-mor'phous.** Having no regular form.
- Am-ni-ot'ic liq'uid.** The fluid surrounding the fetus in the womb.
- An-æs-the'sia.** Suspended sensibility.
- An-as'to-mose.** The uniting of arteries and veins by joining their mouths.
- An-chy-lo'sis.** A stiff or useless joint.
- An-i-mal'cu-læ.** Animals so small that they can only be seen with a microscope.
- An-æ'mi-a.** Privation of blood; a comparatively bloodless state.
- An'o-dynes.** Medicines which diminish sensibility, abate pain, and induce sleep. It should always be remembered that anodynes when frequently, and long taken, lose their influence in disease.
- Ant-a'cids.** Preparations which neutralize acidity of the stomach and bowels.
- Ant-al'ka-lies.** Agents which neutralize alkalies.
- An-ta-phro-dis'i-acs.** Agents which lessen or blunt the sexual propensities.
- An-thel-min'tics.** Medicines which destroy and expel worms.
- An'ti-dotes.** Medicines which counteract and destroy the effects of poison.
- An-ti-pe-ri-od'ics.** Medicines which prevent or cure diseases of a periodical character.
- An-ti-phlo-gis'tics.** Medicines or diet which remove or appease inflammation.
- An-ti-spas-mod'ics.** Medicines which prevent or allay spasms, commonly called cramps.
- An-ti-syph-i-lit'ics.** Medicines which cure syphilis.
- An-ti-sep'ti.** Whatever checks or counteracts putrefaction.
- An-ti-scor-bu'tics.** Articles which prevent and cure scurvy.
- A-pe'ri-ents.** Medicines which gently open the bowels.
- A-pho'ni-a.** A loss of the voice.
- Aph-ro-dis'i-acs.** Medicines supposed to excite and promote the sexual appetite.
- A-pon-eu-ro'sis.** The membranous expansion of tendons and muscles.
- A-re-o'la.** A colored circle, as the circle around the nipple.
- Ar-o-mat'ics.** Medicines which have a grateful, spicy smell, and an agreeable, pungent taste.
- As-phyx'i-a.** Suspended animation; apparent death.
- As-then'ic.** Relating to debility; or to disease marked by debility.
- As-trin'gents.** Medicines which have the power to constrict or pucker up the tissues of the body, and thereby check discharges.
- At'ro-phy.** A wasted condition; leanness.
- Ax-il'la.** The arm-pit.
- Aus-cul-ta'tion.** The art of detecting disease by listening to the sounds of the lungs, heart, etc.
- Au-top'sy.** Personal inspection,—used in the sense of a post-mortem examination.

A-zo'te. Nitrogen; one of the constituents of the atmosphere.

Bron'chi-a. The pipes which convey the air through the lungs.

Bur'sæ mu-co'sa. Small sacs, situated under tendons, about the joints, containing a sticky fluid.

Cal'cu-lus. A solid, unorganized body formed in the kidneys, or bladder, and called a stone. The plural is *calculi*.

Cap'il-la-ry. Small, resembling a hair.

Cap'sule. A membranous bag, enclosing a part.

Car'ti-lage. Gristle attached to the ends of the bones.

Car-min'a-tives. Medicines which expel wind from the stomach and bowels, and allay the pain caused by it.

Ca-thar'tics. Medicines which purge the bowels.

Cer'vix. The neck. *Cer'vix U'ter-i.* The neck of the womb.

Car'di-ac. Relating to the heart.

Car'pal. Relating to the wrist.

Cat-a-me'ni-a. The monthly flow of females.

Ca-thar'sis. Purging.

Cath'e-ter. A tube for drawing off the urine.

Cel-lu'lar. Relating to cells.

Cer'e-bral. Relating to the brain.

Cha-lyb'e-ate. Containing iron or steel.

Che-mo'sis. A swelling of the eye, in which the eye projects, with a depression in the centre.

Cho'la-gogue. A medicine which causes a discharge of bile.

Clo'nic spasms. Spasms which are rigid and relaxed alternately.

Col-li'qua-tive. This term is applied to excessive and exhausting discharges.

Co-los'trum. The first secretion of milk.

Co'ma. Profound stupor, or sleep.

Con'dyle (kon'dil). A knob; applied to certain projections of bones at joints.

Con'flu-ent. Not distinct; running together.

Con-gen'i-tal. Existing at the time of birth.

Con-ges'tion. Distention of parts by an accumulation of blood in them.

Con-junc'ti-va. The membrane which covers the eye and lines the eyelid.

Con'tra-in'di-ca-ted. Not indicated; the opposite implied.

Cord'ials. Medicines which have a grateful, warming and exhilarating effect upon the stomach.

Coun'ter-ir'ri-tants. Articles which by irritating one part, withdraw blood from, and relieve another.

Cri'sis. The turning point of a disease.

Cu'ti-cle. The epidermis; the scarf-skin

De-cid'u-a. A thin, external membrane, within the womb, thrown off after child-bearing.

De-liq'ui-um. Fainting.

De-mul'cents. Medicines of a softening nature, which correct acrid conditions, and, by their bland effects, soothe inflamed and irritated parts.

De-ple'tion. Diminishing the fullness of a part or parts, as by purgatives, or bleeding.

De-squa-ma'tion. Separation of the skin in scales; scaling off.

De-ter'gents. Medicines which cleanse.

Di-ag-no'sis. The art of determining the nature of diseases.

Di-a-pho-ret'ics. Medicines which promote sweating.

Di-ath'e-sis. Any particular disposition, state, or habit of body.

Di-u-re'sis. Copious flow of urine.

Dil'u-ents. Watery drinks, which increase the fluidity of the blood, and render several of the secretive and excretive fluids less viscid.

Dis-cu'tients. Medicines which scatter, resolve, or disperse tumors.

Dis-in-fec'tants. Articles which purify or cleanse infected places.

Di-u-ret'ics. Medicines which increase urinary secretions.

Dras'tics. Strong and violent purgatives.

Dysp-nœ'a. Difficulty of breathing.

E-me'sis. Vomiting.

E-met'ics. Medicines which cause the stomach to reverse its action, and throw its contents up through the mouth.

Em-men'a-gogues. Medicines supposed to have the power of exciting or increasing the menses.

E-mol'lients. Those substances which have the power of softening or relaxing the animal fibre, when applied externally.

En-dem'ic dis-eas'es. Diseases prevailing in certain localities or districts.

Ep-i-dem'ic dis-eas'es. Diseases extending over a large extent of country.

Ep-i-glot'tis. The cartilage, which, in the act of swallowing, shuts down upon the top of the wind-pipe, and prevents food from going into the breath-passage.

Ep-is-pas'tics. Substances which inflame the skin, and raise the cuticle, and cause what is called a blister.

Es-cha-rot'ics. Articles which burn, corrode, disorganize, and destroy the animal tissues, causing what is called an eschar, or slough, which is dead matter, and falls off.

Ex-pec'to-rants. Articles which act upon the system, so as to make the discharge of mucus and other substances from the air-tubes more easy.

Er/rhines. Substances which cause sneezing and a discharge of mucus from the nose when snuffed.

Es'char. The dead part, killed by caustic or mortification, which falls off; a slough.

Ex-fo-li-a'tion. A scaling off, as a piece of dead bone.

Fau'ces. The back part of the mouth.

Fe'brile. Belonging to fever.

Fe'ces. The matter discharged from the bowels.

Feb'ri-fu-ges. Medicines which assuage or remove fevers.

Flatus. Wind, or rather, gas, in the stomach or bowels.

Fol'li-cle. A little bag or sac.

Fo-ra'men. A hole or opening.

For-mi-ca'tion. A sensation like the creeping of ants.

Fur-fu-ra'ceous. Branny or scaly.

Gang'li-on. An enlargement in the course of a nerve.

Gan'grene. Mortification; partial death.

Gas'tric. Belonging to the stomach.

Ges-ta'tion. The period of pregnancy.

Glot'tis. The opening into the windpipe, covered by the epiglottis.

Gran'u-lar. Like small grains.

Gran'u-la-ted. Covered with granulations.

Gran-u-la'tion. The filling up or covering of a wound or ulcer, with small, red elevations, looking like grains.

Hæ-mop'ty-sis. Raising blood from the lungs.

Hæm'or-rhage. A flow of blood.

Hæm-or-rha'gic. Having a tendency to bleed.

He-mi-cra'ni-a. Pain on one side of the head.

He-pat'ic. Belonging to the liver.

Hy-per-ca-thar'sis. Excessive purging.

Hy-per'tro-phy. An unnatural enlargement of an organ, without change of structure.

Hyp-not'ics. Medicines which cause sleep.

Ich/or (Ik'or). A thin, watery, and acrid discharge.

In-ter-cos'tal. Between the ribs.

Lar'ynx. The top of the windpipe; the cavity which contains the vocal ligaments.

Lax'a-tives. Medicines which render the bowels a little more relaxed than natural, but do not purge.

Lig'ate. To secure with a ligature.

Lig'a-ture. A cord or thread.

Lo'chi-a. The bloody discharge from the womb for some time after childbirth.

Lo'chi-al. Relating to the lochia.

Lymph. A whitish fluid contained by the lymphatic vessels.

Lym-phat'ics. The vessels which carry lymph.

Mac-er-a'tion. The act of softening or soaking a thing by letting it stand in water.

Mac'u-læ. Colored spots; blemishes.

Ma-la'ri-a. Noxious gases from decomposed matter.

Mam'ma. The female breast.

Man-dib'u-lar. Relating to the jaw.

Mas-ti-ca'tion. The act of chewing.

Mas-tur-ba'tion. The act of exciting the genital organs with the hands.

Men'stru-um. Any solvent, or vehicle.

Met-a-car'pus. The hand, between the wrist and the fingers.

Me-tas'ta-sis. The changing of a disease from one place to another.

Met-a-tar'sus. That part of the foot between the ankle and the toes.

Mi-as-mat'ic. Partaking of the nature of miasm.

Mu'co-pu'ri-form. Composed of both mucus and pus.

Mu'co-se'ro-lent. Composed of both mucus and serum.

Nar-cot'ics. Medicines which relieve pain and produce sleep.

Nau'se-ants. Medicines which cause sickness at the stomach, or a disposition to vomit. They are often used as expectorants.

Nos-ol'o-gist (Nose-ol'o-gist). One who explains and classifies diseases.

Nu'cle-us. A central spot.

Nu-cle-o'lus. A spot within a nucleus.

Or-thop-nœ'a. Great difficulty of breathing.

Os-si-fi-ca'tion. The formation of bone.

Os u'ter-i. The mouth of the womb.

O'va. Eggs.

O'vum. An egg.

Pa-pil'la. A red, elevated point upon the tongue, or elsewhere. Certain diseases make these points more prominent.

Par-a-cen-te'sis. The operation of puncturing the chest, or the abdomen, for the purpose of drawing off water.

Par-a-phle'gi-a. Paralysis of the lower half of the body.

Par'ox-ysm. A fit of disease taking place periodically.

Par-tu'ri-ent. Bringing forth, or giving birth.

Par-tu'ri-ents. Medicines which promote child-bed labor, by causing contractions of the womb.

Par-tu-ri'tion. Child-birth.

Pec'to-rals. Medicines intended to cure or relieve diseases of the chest.

- Pel'vis.** The bony cavity, or basin, at the lower part of the body, containing the womb, abdomen, rectum, etc.
- Per-i-ne'um.** The part, or space, between the anus and testicles.
- Per-i-os'te-um.** A thin, hard membrane, covering the bones.
- Per-i-os-ti'tis.** Inflammation of the periosteum.
- Per-i-to-ne'um.** A serous membrane lining the cavity of the belly, and folded over most of the organs contained in it.
- Pet-e'chi-æ.** Purple spots which appear upon the skin in low fevers, looking like flea-bites; called also ecchymoses.
- Pha-ge-den'ic.** Corroding, eating,—applied to ulcers.
- Pha-lan'ges.** The bones of the fingers and toes.
- Phar'ynx.** The upper part of the throat.
- Phleg-mo'nous in-flam-ma'tion.** Inflammation marked by redness, heat, and pain, and a tendency to form matter.
- Prog-no'sis.** The art of foretelling the termination of diseases.
- Pty'a-lism.** Salivation.
- Pri'a-pism.** A continued erection of the penis from exciting, morbid causes.
- Re-frig'er-ants.** Medicines which lessen the heat of the body.
- Re-lax'ants.** Medicines which relax the tension of the muscles.
- Re-mis'sion.** A lessening or mitigation of the severity of the symptoms of a disease.
- Res-o-lu'tion.** Dispersion of an inflammation before pus is formed.
- Re-vul'sives.** Medicines or appliances which remove a disease by causing a determination to some other part.
- Ru-be-fa'cients.** Applications which excite the skin, causing the blood to flow to it, and making it red.
- Sa'nies.** A thin fluid discharged from ulcers, having some of the properties of pus and blood.
- Sed'a-tives.** Medicines which diminish the action of the heart and nerves, and which are used when we wish to allay any excited action in the system.
- Se'rous.** Watery.
- Scro'tum.** The bag which contains the testicles.
- Scyb'a-la.** Hard, round lumps in the feces.
- Si'a-la-gogues.** Medicines which increase the flow of saliva.
- Slough (*Sluff*).** Any part of the body killed by mortification, or caustic, and cast off.
- Sper-mat'ic cords.** Two cords, composed of nerves, veins, and arteries, descending, one on each side, from the abdomen into the scrotum, and suspending the testicles.
- Squa'mous.** Scaly; having scales.
- Sor'des.** The dark matter deposited upon the lips and teeth, in low fevers.
- Ster'num.** The breast-bone.
- Ster'tor.** Noisy breathing, as in apoplexy. Snoring.
- Ster'tor-ous.** Snoring and noisy, as applied to breathing.
- Stim'u-lants.** Medicines which increase the activity of the system.
- Sto-mach'ics.** Medicines which support and renovate the stomach, making its action healthy.
- Stru'ma.** Scrofula.
- Styp'tics.** Substances which, when applied externally, have the power to constrict or pucker up bleeding vessels, and stop the loss of blood.
- Sub-cu-ta'ne-ous.** Under the skin.
- Sub-max'il-la-ry.** Under the lower jaw.
- Sub-sul'tus ten'di-num.** Slight twitchings of the tendons, which occur in low forms of fever.
- Su-do-rif'ics.** Medicines which cause a flow of perspiration, rather more free than that produced by diaphoretics.
- Sup-pos'i-to-ries.** Solid medicinal substances, of a conical or cylindrical shape, which are placed in the rectum for the purpose of relieving constipation and the piles, and for removing stricture.
- Syn'co-pe.** Fainting; swooning.
- Te-nes'mus.** A painful bearing down in the lower bowel, and a distressing desire to go to stool.
- Ton'ics.** Medicines which gradually give tone and strength to weakened organs, or to the whole system. Some act upon the nervous system, and some upon the other tissues, by condensing, hardening, and invigorating them.
- Tor'mi-na.** Gripping pain.
- U-re'ters.** The tubes which convey the urine from the kidneys to the bladder.
- U-re'thra.** The canal which conveys the urine from the bladder out of the body.
- U'ter-us.** The womb.
- Vag'i-na (*Vadg'i-na*).** The passage from the external genital organs to the womb.
- Va'ri-cose veins.** Veins which are morbidly enlarged, and present along their course soft, knotty, purplish tumors.
- Ver'ti-go.** Dizziness; giddiness.
- Ve-si-ca'tion.** Blistering.
- Vi'rus.** Poison; contagion.
- Vis'cus.** A liver, stomach, kidney, heart, or any organ within one of the cavities of the body.

GENERAL INDEX.

- Abdominal cavity**, 128;
 Diseases of, 324.
Abortion, 464.
Abscesses, 580; Of the
 Brain, 191.
Absence of menses, 430.
Absorbent vessels, 44.
Accidents, 560; On the
 Water, 563; By Pois-
 oning, 564.
Acetate of ammonia, 990;
 Of copper, poisoning
 by, 565; Of lead, pois-
 oning by, 566; Of lead
 ointment, 1074.
Acid, acetic, 987; Ben-
 zoic, 993; Citric, 987;
 Diluted hydrochloric,
 937; Diluted hydro-
 cyanic, 987; Diluted
 nitric, 987; Diluted
 nitro-muriatic, 987;
 Diluted sulphuric, 987;
 Tannic, 988; Tartaric,
 933.
Acids, poisoning by, 566.
Acne, spotted, 177.
Aconite, 1029; Poison-
 ing by, 566; Tincture
 of, 1087.
Adenoid growths, 240.
Adipose tissue, 20.
Adrenalin chloride, 1146.
Advanced life, changes
 in, 550.
Affections of the bowels,
 951; Of the chest,
 949; Of the ear, 650;
 Of the head, 949; Of
 the stomach, 951.
Affusion, 914.
Age, influence of, 131.
Ague, brow, 231; Fever
 and, 522.
Ague cake, 523.
Ague root, 1053.
Air in sick rooms, 119;
 In chest, 290; Supply
 of, 120; Swellings,
 354; And ventilation,
 117.
Air-cells and vesicles, 40;
 Enlargement of, 288.
Albumen, 17.
Albuminous Foods, 74.
Albuminuria, 371; Diet-
 ing in, 974.
Alcohol, 988.
Alder, tag, 1055.
Alimentary tube, 36.
Aliments, fluid, 943.
Almond mixture, 1072.
Almonds, 988; Syrup of,
 1083.
Aloes, 988; Compound
 tincture of, 1089; And
 canella, comp. tinc-
 ture of, 1081.
Alterative inhalant, 273.
Alteratives, 1106.
Altered sounds of the
 heart, 308.
Alum, 988.
Alum whey, 960.
Amaurosis, 648.
Amenorrhœa, 430.
American Hellebore, 988;
 Ipecacuanha, 989; Ivy,
 989; Valerian, 1062.
Ammonia, aromatic
 spirits of, 990; Car-
 bonate of, 990; Com-
 pound liniment of,
 1070; Muriate of, 990;
 Poisoning by, 565; So-
 lution of acetate of,
 990; Water of, 989.
Ammonia-Citrate of Iron,
 1020.
Amount of food to be
 taken, 88.
Amusements, 123; Com-
 pleteness of life, 126;
 Games for, 124; Light-
 er, 125; Selection of,
 124; Value of domes-
 tic, 125; Want of, 126.
Anaemia, 320, 511.
Anaesthetics, 661.
Anasarca, 391.
Anatomy, 16; Of the
 bones, 20.
Anchylosis, 629.
Aneurismal tumors of
 the heart, 312.
Aneurisms, 634.
Anger demands absti-
 nence, 81.
Angina pectoris, 280;
 Diet in, 950.
Anidrosis, 176.
Animal food, 89.
Anise, 990.
Ankle, dislocation of, 624.
Anodyne poultice, 1080.
Anodynes, 1108.
Anteflexion of womb, 447.
Antiversion of womb, 446.
Anthrax, 588.
Antidotes of poisons, 564,
 1096.
Antiflogistine, 1146.
Antihemorrhagic inhal-
 ants, 274.
Antimony, poisoning by,
 565.
Antipathies, 934.
Antiseptic dressings, 468,
 596; Inhalants, 274.
Antiseptics, 573.
Antispasmodics, 1106.
Aorta, 42.
Aperient, Metauer's 1073.
Apoplexy, 202; Of the
 aged, 557; Pulmo-
 nary, 290.
Apothecaries' weights,
 984.
Apparent death from
 various causes, 560.
Appendicitis, 349.
Apple water, 957.
Approximate measures,
 985.
Aptha communis, 539.
Apthæ, 497.
Aqueous, the, 55.
Arachnitis, 189.
Arachnoid, 50; Inflam-
 mation of, 189.
Arbutus, trailing, 1056;
 Comp. infusion of,
 1069.
Arm, fractures of, 607.
Arnica, 991.
Aromatic confection,
 1066; Powder, 907;
 Spirits of ammonia,
 990.

- Arrowroot**, 991; Gruel, 957; Poultice, 1080.
Arsenic, poisoning by, 565.
Arteries, 42; Compression, 655.
Articles for a medicine-chest, 983.
Arytenoid cartilages, 46.
Ascites, 389.
Aseptic and septic, 573.
Asiatic cholera, 362.
Asphyxia, 560.
Assafoetida, 991; Comp. tincture of, 916.
Asthma, 301; Of the aged, 557; Diet in, 950.
Astringent inhalent, 274.
Astringents, 594, 930.
Atmosphere, pressure of, 117.
Atmospheric inhalation, 280.
Atrophy of brain, 198; Of heart, 313.
Attendants, unhired, 933.
Auricles, 41, 306.
Auscultation, 260.

Backache, 142.
Bacteriology, 512.
Baldness, 185.
Balm, 991; Of Gilead, 991.
Balmony, 991.
Balsam copaiba, 991; Tolu, 992.
Bandages, 674; Wet, 903.
Barberry, 992.
Barber's itch, 178.
Bark, when to gather, 982.
Barley, 85; Coffee, 955; Water, 954.
Barrenness, 455.
Base ball, 99.
Basilicon ointment, 1066.
Bath, cataracts, 909; Cold, 895; Effects of cold, 896; Cold foot, 915; Douche, 909; Eye and ear, 916; Half, 908; Head, 910; Hose, 907; Hot, 896; Effects of hot, 898; Leg, 912; Mouth or oral, 917; Nose, 916; Pail douche, 910; Plunge, 911; Restoration of, desirable, 116; Shower, 909; Sitz, 912; Sluce, 910; Tepid, 896; Effects of tepid, 897; Towel and sponge, 914; Vapor, 896; Warm, 891; Effect of warm, 897; Wading foot, 915; Warm foot, 916; Wash down, 914; Wash tub, 913; Wave, 910.
Bathing, 975; And cleanliness, 110; Sea, 898.
Baths as a purifier, 112; Of the Ancients, 112; Cold, 114; Cold affusion, 115; Division of, 894; Names of, 113; Neglect of, 113; Number and character of, 112; Reaction after, 116; Restoration of, desirable, 116; Roman, 112; Russian, 976; Shower, 115; Sponge, 114; Turkish, 976; Vapor, 115; Warm, 115; Warm for children, 496.
Bayberry, 992; Ointment, 1074.
Bean, St. Ignatius, 1053.
Beans, 78, 87.
Bearberry, 992.
Beds and bedding, 105, 922.
Bed-bugs, 182.
Bed-sores, 938.
Beef, essence of, 958-962; Galls, 992; Tea, 958, 962.
Beets, 87.
Belladonna, ointment, 1074; Plaster, 1077; Poisoning by, 567.
Belly, dropsy of, 389; Symptoms affecting, 135.
Belly-ache, 353.
Benzoic acid, 993.
Benzoin, 993; Comp. tincture of, 1090.
Bethroot, 993.
Bichloride of gold, 1013; Of mercury, 1006.
Bile in stomach, 72.
Biliary calculi, 332.
Bilious colic, 354; headache, 230, 233; Remittent fever, 520.
Binary compounds, 16.
Bismuth, 994.
Bites of insects and snakes, 599; Of mosquito or insect, 1096.
Bitter-root, 993.
Bitter-sweet, 994.
Black alder, 994.
Blackberry, 994, 1097.
Black cancer, 631.
Black cohosh, 995; Comp. tincture of, 1090;
Black oxide of iron, 1020; Root, 995; Vomit, 524; Willow, 995.
Bladder, 39; Acute inflammation of, 368; Chronic inflammation of, 369.
Bleeding cancer, 631; From kidneys, 374. From nose, 654; From wounds, 656.
Bleuorrhagia, 404.
Blistering plaster, 1066.
Blood, 510; Buffy coat of, 577; Composition of human, 277, 510; In Scrotum, 636; Need of good supply of, 64, 66; Poisoning, 474; To stop the flow of, 658.
Bloodroot, 995.
Bloody flux, 363.
Blue cohosh, 996; Comp. tincture of, 1090;
Blue Disease, 507; Flag, 996; Pill, 997.
Body, structure of, 16; Chemical properties of, 16; Lice, 181; Paralysis of one side, 206; Paralysis of lower part, 206; Physical properties of, 18; Temperature of, 138; Vital properties of, 20.
Boiled flour, 958.
Boils, 587.
Bones' bitters, 1092.
Bones and muscles, 128; Anatomy of, 20; Broken, how they unite, 603; Death of, 626; Diseases of, 625; Of the head, 22; Of the trunk, 23; Of the upper extremities, 25; Of the lower extremities, 26; Time required for uniting, 604; Ulceration of, 625; Unnatural growth of, 626; Uses of, 29; Of the hand, dislocation of, 620; Of the foot, fracture of, 614; Of

- the leg, fracture of, 613; Of the nose, fracture of, 605.
- Boneset**, 997.
- Bony productions of the heart**, 313.
- Borax**, 1050.
- Bowel**, falling of, 505.
- Bowels**, affections of, 951; Acute inflammation of, 347; Chronic inflammation of, 348; Looseness of, 360; Looseness of in infants 503.
- Brachial plexus**, 52.
- Brain**, 49, 128; Abscess of, 191; Diet in affections of, 949; And nerves, diseases of, 188; Dropsy of, 200; Enlargement of, 197; Exercise of, 65, 66; Fever of, 189; Health of, 59; Induration of, 191; Inflammation of, 189; Need of a healthy, 64; Old people's, 66; Overworking in childhood, 66; Shrinking of, 198; Softening of, 190; Tumors of, 191.
- Bran**, decoction of, 954.
- Brandy mixture**, 1073.
- Bread**, Franklin mills, 961; Germ wheat, 961; And water poultice, 1079.
- Breast**, broken, 477; Inflammation of, 477.
- Breastbone**, fracture of, 610.
- Breathing murmers**, 262; Difficulty in, 937; Objects of, 118; Philosophy of, 117; Symptoms affecting, 135.
- Bright's disease of the kidneys**, 371.
- Broiled beef**, essence of, 962.
- Broken bones**, 605; Breast, 477.
- Bronchial consumption**, 267; Flux, 556; Tubes, 40.
- Bronchitis**, 237; Acute, 285; Chronic, 287.
- Bronchocele**, 635.
- Broncho pneumonia**, 300.
- Bronchorrhœa**, 556.
- Broth**, clam, 962; Mutton, 962.
- Brow ague**, 231.
- Bruises**, 624.
- Bubo**, 395, 404.
- Buchu**, 997; Tincture of, 1088.
- Buckhorn brake**, 998.
- Buckthorn**, 998.
- Buckwheat**, 86.
- Buffy coat of the blood**, 577.
- Bugle-weed**, 998.
- Bulbous roots**, when to gather, 982.
- Bunions**, 183, 628.
- Burdock**, 998.
- Burgundy pitch**, 998.
- Burns and scalds**, 589.
- Bust**, to enlarge, 1166.
- Butternut**, 998.
- Cabbage**, 87.
- Calamine cerate**, 1065; Prepared, 1063.
- Calcined deer's horn**, 999.
- Calculus**, 387; Fusible, 388; Mixed, 387; Oxalate of lime, 388; Phosphate of lime, 388; Water of ammonia, 388; Uric acid, 387.
- Calendar for married ladies**, 480.
- Calf'sfoot jelly**, 958.
- Calomel**, 999.
- Calvities**, 179.
- Camphor**, 1000; Lini-ment, 1070; Water, 1071.
- Camphorated soap lini-ment**, 1071.
- Canada Balsam**, 1000; Fleabane, 1000; Snake root, 1060.
- Cancer**, 629; Black, 631; Bleeding, 631; Medul-lary, 631; Soft, 631; Of intestines, 350; Of womb, 449.
- Cancrum oris**, 498.
- Canella**, 1000.
- Canker**, 498, 539; Let-tuce, 1045; Of mouth, 498.
- Cantharides**, tincture of, 914.
- Capillaries**, 42.
- Capsicum**, plaster, comp., 1078.
- Capsules**, supra-renal, di-seases of, 370.
- Caput obstipum**, 642.
- Caraway**, 1000.
- Carbonate of ammonia**, 990.
- Carbuncle**, 588; Malig-nant, 589.
- Cardialgia**, 341.
- Cardamom**, 1000; Comp-tincture of, 1090.
- Carditis**, 315.
- Care of children and their diseases**, 483, 508.
- Care of the eyes**, 1162; Of the hands, 1158; Of the mouth, 1162; Of the teeth, 662; Of the sick, 62; Of the skin, 553.
- Caries**, 625; Of the teeth, 662.
- Carminatives**, 1104, 1108.
- Carriage-riding as exer-cise**, 102.
- Carrots**, 87; Poultice, 1079.
- Cartilage**, 28; Arytenoid, 46; Cricoid, 46; Thy-roid, 46.
- Cartilaginous tissue**, 19; Productions of the heart, 313.
- Cascarilla**, 1000.
- Casein**, 18.
- Cassia buds**, 1003.
- Castor**, 1001; Oil, 1001.
- Catalepsy**, 213.
- Cataplasms**, 1079.
- Cataract baths**, 909.
- Catarrh**, nasal, 237; Of bladder, 369.
- Catarrhal ophthalmia**, 646.
- Catechu**, 1001; Confec-tion of, 1067; Comp-infusion of, 1068; Comp. powder of, 1081; Tincture of, 1089; Comp. tinct. of, 1090.
- Cathartics**, 1101.
- Catnip**, 1001.
- Cayenne pepper**, 1001; Tinct. of, 1089, 1097.
- Celandine**, 1002.
- Celery**, 1097.
- Cellular tissues**, 18.
- Cerates**, 1065.
- Cerebellum**, 50.
- Cerebrum**, 49.
- Cerebro-spinal fever**, 200.
- Cessation of menses**, 439.
- Chafing**, 655.
- Chalk**, 1002; Mixture, 1073; Comp. powder of, 1081; With opium, comp. powder of, 1081; Stones, 527.
- Chamomile**, 829.
- Chancre**, 395.

- Change of circumstances**, bad effect of, 65.
Changes occurring in advanced life, 550.
Charcoal, 1003; Apparent death from burning, 560; Poultice, 1079.
Chemical food, 1085; Injuries, 589; Properties of the body, 16.
Cherry cordial, pulmonic, 279; Wild, 1059.
Chest, affections of, 949; Air in, 290; Diseases, 259; Methods of examining, 260; Sounds, philosophy of, 263; Symptoms affecting, 134; Water in, 291.
Chickenpox, 162.
Chicken water, 959.
Chickweed, red, 1044.
Chilblains, 591.
Child-bed fever, 474.
Children, care and diseases of, 483; Clothing of, 483; Food of, 483; Nursing sick, 492; Sleep of, 490; Weaning of, 489; Sore mouth, 496.
Chills, 143.
Chloride of lime, 1025; Of zinc, 1063; Of Sodium, 1050.
Chloroform, 662.
Chlorosis, 437, 511; Diet in, 948.
Choice of sick room, 920.
Cholera, Asiatic, 362; Diet in, 952; Infantum, 504; Morbus, 361.
Chorea, 213; Chronic, 215.
Choroid coat of eye, 54.
Chromidrosis, 176.
Chyle, 72; Destination of, 72.
Chyme, 71.
Ciliary processes, 55.
Cinchona, 1036.
Cinnamon, 1003; Tinct. of, 1089; Comp. tinct. of, 1090.
Circulation, organs of, 41.
Cirrhosis of liver, 329.
Cirsocele, 640.
Citrate of iron, 1020; Of iron and quinia, 1020; Of iron and strychnia, 1020.
Citrate of potassa, 1041.
Citric acid, 987; Syrup of, 1083.
Citrine ointment, 1075.
Clam broth, 962.
Clap, 404.
Clavicle, fracture of, 606.
Cleaning the teeth, 665.
Cleanliness, 110; In the sick room, 924.
Cleavers, 1004.
Clergyman's sore throat, 240.
Climate, 79, 131.
Clothing, 106; As conductors of heat, 107; Catching fire, 563; Color of, 109; Cotton, 107; Hair as, 108; Linen, 107; Shoes, thin, 109; Should be porous, 109; Silk, 108; Tight, 109; Woolen, 108.
Clover, red, 1044.
Cloves, 1004.
Clovus, 173, 183.
Clysters, 1069.
Coaptation, 602.
Coats of the eyes, 54.
Coca wine, 1144.
Cocaine, 662.
Cochineal, 1004.
Cod liver oil, 1004, 1142.
Coffee, 93, 944; Barley, 955; Crusts, 955; Milk, 961.
Cohosh, black, 995; Blue, 996; Tinct. of, 1090.
Colchicum, comp. tinct. of, 1090.
Cold, effects of, 590; Baths, 114, 895; Cream, 1075; Footbaths, 915; Water at meals, 70.
Colds, 253, 1095.
Colic, 504; Bilious, 354; Flatulent, 353; Of Infants, 504; Painter's, 355; Wind, 353.
Colica pictorum, 355.
Colitis, 363.
Collar-bone, fracture of, 606; Dislocation of, 618.
Collodion, 1004.
Colocynth, 1005.
Colombo, 1005.
Colon, 37.
Color of clothing, 109.
Color of skin, disordered, 175; Patches on skin, 175.
Colt's foot, 1005, 1060.
Coma, an alarming symptom, 937.
Comedones, 177.
Comfrey, 1005; comp. wine of, 1072.
Common silk-weed, 1005.
Complexion, 1096, 1153; Diet, 1155.
Complicated wounds, 592.
Composition of Blood, 510.
Compound fractures, 615.
Compound Infusion of catechu, 1068; Of gentian, 1068; Of geranium, 1069; Of parsley, 1069; Of senna, 1069; Of trailing arbutus, 1069; Of resin cerate, 1066.
Compresses, 903.
Compression, 594; Of arteries, 568.
Conception, 457; Prevention of, 457.
Concoctions, 967.
Condoms, 466.
Confections, 1066; Aromatic, 1066; Of catechu, comp. 1067; Of senna, 1067.
Congestive fever, 521; Headache, 232; Inflammation of the skin 156.
Congestion of the liver, 328.
Conium, poisoning by, 567.
Conservative leaders, 14.
Conserves, 1066.
Constipation, 144, 357; Cure for, 1206.
Constitution, 128, 130.
Constitutional differences, 268; Treatment, 275.
Constriction of the bowel, 351.
Consumption, 259; A general disease, 271; Bronchial, 267; Of bowels, 346; Causes of, 265, 269; Can it be cured, 270; Constitutional difference, 268; Dieting in, 282; Drugs in, 284; Exercise in, 282; Partial sweating in, 937; Stages of, 264; Traveling in, 284; Tubercular, 263.
Contused wounds, 592.
Contusions, 624.
Convulsions, 937; Diet in, 947.

Cookery for the sick room, 954.
 Copper, 1006; Subacetate of, 1006; Sulphate of, 1006.
 Corn, Indian, 86.
 Cornea, 54; Inflammation of, 647.
 Corneitis, 647.
 Corns, 173, 1096.
 Corpulence, diet in, 971.
 Corrosive sublimate, 1006; Poisoning by, 565.
 Coryza, 156.
 Cost of foods, 82.
 Costiveness, 357; During pregnancy, 462.
 Cotton, 1006; Clothing, 107.
 Cough, 143, 279, 1095; During pregnancy 464; Symptoms indicated by, 136; Whooping, 502; Preparations, 1107.
 Counter extension, 601; Irritation, 578; Irritants, 1111.
 Coup de Soleil, 204.
 Cow-pox, 162.
 Coxalgia, 627.
 Crab lice, 181.
 Cramp bark, 1016.
 Cramps, 215; In stomach, 342, 463.
 Cranesbill, 1007.
 Cranial nerves, 50, 51.
 Crawley, 1007.
 Cream, 941.
 Cream of tartar, 1040.
 Creosote, 278; ointment, 1074.
 Cricoid cartilage, 46.
 Croton oil, 1008; Lini-ment, 1070.
 Croup, 500; Dangerous symptoms in, 936.
 Crow corn, 1053.
 Crural phlebitis, 473.
 Crust-coffee, 955.
 Crusted tetter, 170.
 Crystalline humor of eye 55.
 Cubeb, 1008.
 Cucumber, wild, 1059.
 Cultivating trees, 120.
 Culver's root, 1008.
 Cupping and leeching, 578.
 Cyanosis, 507.
 Cystine deposits in urine 386.
 Cystirrhœa, 369.

Cystitis, 368.
 Dancing, 100.
 Dandelion, 1009, 1097.
 Dandruff, 183.
 Darkening of sick room, 925.
 Deadly nightshade, 1009; Poisoning by, 567.
 Deafness, 653, 936.
 Death, apparent, from noxious vapors, 560; Of the bones, 626; Proofs of, 979.
 Debility, 1095.
 Decoction of bran, 954.
 Decoctions, 1067.
 Deformities of spine, 640.
 Delivery, 466.
 Delirium tremens, 191.
 Delirium, drunkards, 191.
 Dementia, 221.
 Deposits, cystine, 386; Hippuric acid, 385; Oxalic, 383; Phosphatic, 382; Urate of ammonia, 385; Urinary, 378.
 Depression, 144.
 Derangement of mind, 218.
 Derbyshire neck, 635.
 Dermoid tissue, 19.
 Deshler's salve, 1066.
 Diabetes, 373; Dieting in, 974.
 Diaphoretics, 1109.
 Diarrhœa, 360; Chronic, 360; In consumption, 280; Diet in, 952; In infants, 503; When a dangerous symptom, 937.
 Dictionary, pronouncing, 1405; Of drugs and medicines in Latin and English, 1124.
 Diet, a complex subject, 76; Complexion, 1155; In consumption, 282; In convalescence, 939. In disease and convalescence, 939; During confinement, 473; For the aged, 551; Of nursing women, 484; In old age, 81; In general diseases, 945.
 Dieting in regard to health, 970; In disease 973.
 Difficult teeth cutting, 489.
 Difficulty of breathing,

937; Of swallowing, 936.
 Digestibility of foods, 76.
 Digestion and food, 69; Symptoms relating to, 137; Table, 77.
 Digestive organs, 35.
 Dilatation of the ventricles, 310.
 Diphtheria, 247, 533.
 Diseases, general, 510; Of abdominal cavity, 324; Of the bones, 625; Of the brain and nerves, 188; Of the chest, 259; Of the heart, 306; Of children, 483; Of the joints, 627; Of the hip joint, 627; Of the liver, diet in, 952; Of the old 556; Of spinal cord, 201; Of the throat, 236; Female, 415; Peculiar to modern times 542.
 Disinfectants, 928.
 Dislocations, 617; Of ankle joint, 624; Of bones of hand, 620; Of collar bone, 618; Of elbow joint, 620; Of hip joint, 621; Of knee pan or patella, 623; Of knee joint, 623; Of lower jaw, 618; Of shoulder joint, 619; Of wrist, 620.
 Displacement of the heart, 322; Of the womb, 447.
 Disturbed sleep, 227.
 Diuretics, 1109.
 Dizziness, 227.
 Dock, yellow, 1062; Comp. syrup of, 1087.
 Dogwood, 1009; Poisoning by, 567; Swamp, 1055.
 Domestic management of the sick room, 920; Measures, 985.
 Doses, 984; Frequency of, 132.
 Douche bath, 909; Pail, 910.
 Dover's powder, 1082.
 Dragon-root, 1018.
 Dress, wet, 905.
 Dresses, tight, 121.
 Dressing wounds, rules for, 595.
 Dressings antiseptic. 468, 596.

- Drinks for the sick, 944, 955.
- Dropsy of the belly, 389; Of the brain, 200; Of the cells, 391; General, 391; Diet in, 948.
- Drowning, 560.
- Dry pimples, 172.
- Drugs and medicines in Latin and English, 1124.
- Drugs, in consumption, 284.
- Drunkard's delirium, 191.
- Drunkenness, 192.
- Dumb-belle exercise, 1175.
- Dura mater, 50; Inflammation of, 188.
- Dwarf elder, 1010.
- Dysentery, 363; Chronic, 364; Diet in, 952.
- Dysmenorrhœa, 435.
- Dyspepsia, 336, 1095; Causes of, 337; Diet in, 951, 973.
- Dyspeptics, 89.
- Dystrichiasis, 644.
- Ear, 144; Affections of, 652; Bath, 916; Drum, of, 56; External, 56; Foreign substances in, 655; Wax in, 652.
- Earache, 652.
- Eating rapid, 69.
- Eclampsia, 476.
- Eclectics, 8.
- Ecstasy, 213.
- Ecthyma, 170.
- Eczema, 166.
- Effects of cold, 590.
- Eggs, 941.
- Egg-nog, 962.
- Egyptian ophthalmia, 645.
- Elbow, fractures of, 608; Joint, dislocation of, 620.
- Elder, 1010; Dwarf, 1010.
- Elecampane, 1010.
- Electricity, 554.
- Electro-magnetism, 1010.
- Electuaries, 1066.
- Electuary lenitive, 1067.
- Elixir salutis, 1092; Vitriol, 1089.
- Elm, slippery, 1049.
- Elongation of the uvula, 249.
- Emetics, 1100.
- Emphysema, 288.
- Encephalitis, 189.
- Encephaloid tumor, 631.
- Encysted tumors, 177, 633.
- Endocarditis, 315.
- Endosmosis, 900.
- Enlarged veins, 464, 637.
- Enlargement of the air cells, 288; Of the brain, 197; of neck of womb, 422.
- Enlargements or hypertrophy of the ventricles, 308.
- Enteritis, 347; Diet in, 951.
- Enuresis, 377.
- Epiglottis, 46; Inflammation of, 227.
- Epilepsy, 211; Fits, 211.
- Epistaxis, 654.
- Epsom salts, 1027.
- Ergot, 1052.
- Eruptions, scaly, 170; 397; Tubercular, 397; Vesicular, 397.
- Eruptive fevers, diet in, 946.
- Erysipelas, 163; Diet in, 947.
- Erythema, 165.
- Erythematic stomatitis, 496.
- Essence of beef, 958, 962.
- Essences, 1067.
- Eustachian tube, 57.
- Eucaline, 1143.
- Excoriation, 655; When a bad symptom, 937.
- Exercise, 97; Active and passive, 98; After meals, 98; Carriage riding as, 102; Dancing, 100; Excessive, 97; For young women, 99; For students, 98; Horseback-riding, 102; In cold weather, 99; Passive, 101; Pleasurable, 97, 103; Regular, 97; Running and leaping, 99; Sleigh-riding as, 102; Sailing as, 101; Swimming, 102; Time for, 103; Walking, 98; Warning against excessive, 100.
- Exerciser, Whitely, 1207.
- Exhalants, 45.
- Exhaustion, headaches from, 233.
- Exosmosis, 900.
- Exostosis, 626.
- Expectorant inhalant, 273.
- Expectorants, 1107.
- Expectoration, symptoms indicated by, 136.
- External irritants, 280.
- External parts, itching of, 453.
- Extracts, 1067; Fluid, 1068; Of rhubarb and potassa, 1073.
- Eye, 54; Affections of, 643; Coats of, 54; Diseases, headaches from, 229; And ear bath, 916; Foreign bodies in, 643; Globe of, 54; Humors of, 55;
- Eyebrows, 56.
- Eyelashes, disorders of, 644.
- Eyelids, 56, 144; Inflammation of, 643.
- Eyes, care of, 1162.
- Face, do not cover while asleep, 105; Symptoms affecting, 133.
- Faceache, 217.
- Fainting, 226, 464; An alarming symptom, 936.
- Falling of the bowel, 505; Sickness, 210; Of womb, 445.
- Fallopian tubes, 419; Inflammation of, 450.
- False grape, 989; Joints, 605; Measles, 165; Sarsaparilla, 1049; Unicorn, 1015.
- Fat, 17; How to grow, 970.
- Fathers of our race, 548.
- Fatty degeneration of the heart, 313.
- Fatty foods, 83; tumor, 631.
- Favus, 179.
- Febrifuge inhalant, 274.
- Feeding infants, rules for, 487.
- Felon, 628.
- Female diseases, 415; Weakness, 429.
- Fern, male, 1027.
- Ferunculus, 533.
- Fever, 144, 145, 516, 1095; And ague, 522; Bilious remittent, 520; Brain, 189; Child-bed, 474; Cerebro-spinal, 200; Congestive, 521; Diet in, 945; Eruptive, 946; Gastric, of infancy, 506; Intermit-

- tent, 522; Lung, 296; Malarial, 521; Pernicious intermittent, 521; Prognostics in, 935; Prevention of typhoid, 518; Refreshing drinks in, 955; Typhoid, 519; Typhoid lung, 299, 517; Yellow, 524.
- Feverfew**, 1010.
- Fibrin**, 17.
- Fibrous tissue**, 19.
- Figwort**, 1010.
- Fig syrup**, 1142.
- Filling teeth**, 664.
- Fingers, fractures of**, 609.
- Fire, clothing catching**, 563.
- Fire in sleeping rooms**, 104.
- First teeth**, 665.
- Fish**, 941.
- Fistula**, 581.
- Fits, epileptic**, 211; Cataleptic, 213; Of children, 508.
- Flag, sweet**, 1055.
- Flat-foot**, 672.
- Flatulency**, 353.
- Flatulent colic**, 353.
- Flaxseed**, 1011; Lemonade, 962; Poultice, 1079.
- Flesh, to reduce**, 970.
- Flies, Spanish**, 1051.
- Flour, boiled**, 958; Gruel, 962; Unbolted wheat, 79.
- Flowers, when to gather**, 982.
- Flooding**, 470, 477.
- Fluctuation**, 580.
- Fluid aliments**, 943; Extracts, 1068; Nutritive, 961.
- Fluor albus**, 393.
- Folded wet sheet**, 906.
- Follicles**, 45.
- Follicular in inflammation of the mouth**, 497.
- Fomentations**, 1068.
- Food**, 73; Adapted to different periods, 81; Albuminous, 74; Amount of, to be taken, 88; And digestion, 69; Animal and vegetable, 75, 89; Articles of, 83; Azotized and non-azotized, 75; Choice of, 78; Cost of, 82; Digestibility of, 76; Fatty, 83; In winter, 80; For convalescents, 940; For Infants, 486; Gelatinous, 74; Heat generating, 75; Heat producing, 81; In ill health, 78; In old age, 81; In youth and manhood, 81; Nature and destination of, 73; Oleaginous, 74; Organic, 74; Proportion of animal and vegetable, 91; Saccharine, 74; Starch and sugar, 83; Strength and warmth derived from, 139; Value of, 75-85.
- Foot, fractures of**, 614.
- Foot-bath, cold**, 915; Wading, 915; Warm, 916.
- Forearm, fractures of**, 608.
- Foreign bodies in the ear**, 655; In the eye, 643; In the gullet, 656; In the nose, 655; In the windpipe, 656.
- Fowler's Solution**, 1051.
- Foxglove**, 1011.
- Fracture boxes**, 603.
- Fractures**, 600; Comp., 615; Of bones of foot, 614; Of bones of leg, 613; Of bones of nose, 605; Of breast bone, 610; Of collar bone or clavicle, 606; Of elbow, 608; Of the forearm, 608; Of the hand, and fingers, 609; Of the haunch bone or pelvis, 610; Of the knee pan, 612; Of the lower jaw, 605; Reduction of, 601; Of the ribs, 609; Of the shoulder blade, 607; Of the skull, 605; Of the thigh bone, 610; Union of, 615; Of upper arm bone, 607; Of wrist, 609.
- Franklin Mills' bread**, 960.
- Freckles**, 175, 182, 1096.
- Freezing mixtures**, 929.
- French, decimal weights**, 985.
- French milk porridge**, 958.
- Frequency of doses**, 132.
- Frost bite**, 590.
- Frostweed**, 1011.
- Fruits**, 942.
- Fumigants**, 927.
- Fumigation of infected places**, 926.
- Fungus hematoides**, 631.
- Galbanum plaster comp.** 1078.
- Gall bladder**, 38; Stones, 332.
- Galls**, 1011; Comp. ointment of, 1074.
- Gamboge**, 1011.
- Gangrene**, 581; Of the mouth, 498.
- Gardening as exercise**, 101.
- Garfield tea**, 1142.
- Garget**, 1039.
- Gargles**, 1113.
- Garlic**, 1011; Syrup of, 1083.
- Gastric fever of infancy**, 503; Juice, 69.
- Gastritis**, 334.
- Gastrodynia**, 342.
- Gelatin**, 17.
- Gelatinous foods**, 74.
- Gingivitis**, 497.
- General diseases, diet in**, 945.
- General dropsy**, 391; Nerve tonics, 1104.
- General system, diseases of**, 510.
- Gentian**, 1012; Comp. Infusion of, 1068; Comp. Tinct. of, 1091.
- Geranium, comp. infusion of**, 1009.
- Germ wheat bread**, 961.
- Ginger**, 1012; Wild, 1060; Syrup of, 1083.
- Ginseng**, 1012.
- Glands**, 45, 57.
- Glands of larynx, inflammation of**, 241.
- Glanders**, 668.
- Glauber's salts**, 1050.
- Gleet**, 406, 408.
- Globe of the eye**, 54.
- Glossary**, 1405.
- Glottis**, 47; Spasm of, 501.
- Gluten flour**, 1142.
- Glycerine**, 1012.
- Glycones**, 1144.
- Goitre**, 635.
- Gold, bichloride of**, 1013.
- Goldenrod, hard leaf**, 1015.
- Golden seal**, 1013; Comp. powder of 1081; Comp. tincture of, 1091.
- Golden tincture**, 1091.
- Golden wine**, 1072.

Gonorrhoea, 404.
 Goulard's cerate, 1065.
 Gout, 527, 1095; Diet in, 948, 974.
 Granulation, 598.
 Gravel, 378; Symptoms of, 380; Uric acid, 380; Root, 1043.
 Green sickness, 437; Diet in, 948.
 Grippe la, 254, 1096.
 Ground ivy, 1013; Rice milk, 958.
 Grubs or worms, 176.
 Gruel, 944; Arrow-root, 957; Flour, 962; Indian meal, 961; Oatmeal, 962; Rice, 956; Sago, 957; Water, 956.
 Guaiac, ammoniated tinct. of, 1091.
 Guaicol, 278.
 Guaiacum, 1014.
 Gullet, 36; Foreign bodies in, 656.
 Gum arabic, 1014; Hemlock, 1014; Sweet, 1055.
 Gums, inflammation of, 497.
 Gunshot wounds, 599.
 Gymnastics, 99, 1169.
 Habits, 131.
 Haematocoele, 636.
 Haemastasis, 1014.
 Haematuria, 374.
 Haemidrosis, 176.
 Hair, 1096-1164.
 Hair as clothing, 108; and hair tubes, disorders of, 179.
 Hair-moss, 1014.
 Hair oils and washes, 1115; Tonic, 1166; To bleach or redden, 1166.
 Half bath, 908; Pack, 906.
 Hamamelis, 1060.
 Hand, dislocation of bones of, 620; Fractures of, 609.
 Hands, care of, 1096, 1158.
 Hanging, apparent death from, 563.
 Hardhack, 1015.
 Hardleaf goldenrod, 1015.
 Haunch-bones, fractures of, 610.
 Hay asthma, 303; Fever, 303.
 Head, affections of, 949; Bath, 910; Bones of, 22; Dizziness of, 227;

Face and neck, symptoms affecting, 133;
 Lice, 180; Water in, 198.
 Headaches, 146, 228-233, 463, 1095.
 Hearing, organs of, 56.
 Heart, 41, 146; Diseases, 306; Altered sounds of, 308; Aneurismal tumors of, 312; Atrophy of, 313; Bone and cartilage in, 313; Dilatation of ventricles of, 310; Displacement of, 322; Enlargement of ventricles of, 308; Fatty degeneration of, 313; Hypertrophy and dilatation of, 311; Impulse of, 307; Induration of, 312; Inflammation of, 314, 315; Inflammation of lining of, 315, 316; Murmurs of, 318; Neuralgia of, 321; Palpitations of, 320, 463; Percussion of, 308; Polypus of, 322; Shrinking of, 313; Softening of, 312; Sounds of, 307; Valves of, 306, 317, 319.
 Heartburn, 341, 464, 1095.
 Heartcase, acute inflammation of, 313; Chronic inflammation of, 314; Water in, 319.
 Heat generating foods, 75; Incompatible with excitement, 81.
 Hectic Fever, 577.
 Hellebore, American, 988; White, 1059; Ointment, 1076.
 Helonias, 1015.
 Helpless dependence of the aged, 549.
 Hemicrania, 217.
 Hemiplegia, 206.
 Hemlock, comp. tinct. of, 1091; Gum, 1014; Poison, 1038.
 Hemorrhage, 477; During labor, 470; Of Wounds, 593.
 Hemorrhoids, 358, 632.
 Henbane, 1015.
 Hepatitis, 326.
 Herb teas, 944.
 Hernia, 638.
 Herpes, 166.
 Hiccough, 226; When alarming, 936.

High cranberry, 1016; Comp. tinct. of, 1091.
 Hip-joint, disease of, 627; Dislocation of, 621.
 Hippuric acid deposits, 385.
 Hives (nettle rash), 164.
 Hoarseness, unfavorable in small-pox, 935.
 Homœopathy, 9.
 Homœopathic treatment of diseases, 681.
 Honey disease (honey scab), 170.
 Hops, 1016.
 Hordeolum, 643.
 Horehound, 842; Water, 1058.
 Hornpox, 164.
 Horseback riding as exercise, 102.
 Horsemint, 1017.
 Horseradish, 1017.
 Horsford's Acid Phosphate, 1143.
 Hose bath, 907.
 Hot bath, 896; Effects of, 898.
 Hot drops, 1092.
 Houseleek, 1017.
 How to grow fat, 970; To lift the sick and injured, 568; To nurse sick children, 492.
 Human blood, composition of, 277.
 Human longevity, 140.
 Humors of the eye, 55.
 Hydatids, uterine, 443.
 Hydrangea, 1017, 1098.
 Hydrastine, comp. powder of, 1081.
 Hydrocele, 635.
 Hydrocephalus, acute, 198; Chronic, 200.
 Hydrochloric acid, 987.
 Hydrocyanic acid, 987.
 Hydropathic treatment, 894.
 Hydropathy, 8.
 Hydropericardium, 319.
 Hydrophobia, 208.
 Hydrothorax, 291.
 Hygiene, 59.
 Hyoscyamus, poisoning by, 567.
 Hypertrophy of the brain, 197; Of the heart, 308; Of the lungs, 289; Of the ventricles, 308.
 Hypochondria, 224.
 Hypochondrium, 325.
 Hypogastrium, 325.

Hypophosphites, comp.
syrup of, 1084.
Hyssop, 1017.
Hysteria, 441.
Hysterical headache, 231.

Ice for wounds, 594.
Ice plant, 1018.
Iceland moss, 1018.
Iceterus, 331.
Idiocy, 221.
Idiosyncrasy, 131.
Idrosis, 176.
Ileum, 37.
Imperfect vision, 648.
Impetigo, 170.
Impregnation, 457.
Inability to hold urine, 377.
Incised wounds, 592, 593.
Incubus, 227.
Indian corn, 86.
Indian hemp, 1018;
White, 1055; Tinct. of, 1088.
Indian meal gruel, 961;
Poultice, 1080.
Indian turnip, 1018.
Indigestion, 336; Diet in, 951; Headache from, 230, 232.
Indigo, wild, 1060.
Indolent ulcers, 586.
Induration of the brain, 191; Of the heart, 307.
Inebriety, 192.
Infants, exercise of, 491;
Gastric fever of, 506;
Milk for, 486, 956;
Moral treatment of, 491; Summer complaint of, 504; While sleeping, 490.
Inflammation, 574; Of the arachnoid or pia mater, 189; Of the bladder, 368; Of the bowels, 347; Of the brain, 189; Of the breast, 477; Of the cornea, 649; Of the dura mater, 188; Of the epiglottis, 255; Of the eyelids, 643; Of the fallopian tubes, 450; Of the gums, 497; Of the heart, 312, 315; Of the heart case, 313, 314; Of the iris, 647; Of the kidneys, 366, 368; Of the lachrymal sac, 644; Of the larynx, 241; Of the lining of the heart, 316; Of the

liver, 326; Of the mouth, 496; Of the mucous membrane, 241; Of the meatus, 651; Of the neck of womb, 420, 422; Of the ovaries, 426; Of the peritoneum, 345, 346; Of the pharynx, 240; Of the skin, 156; Of the spinal cord, 202; Of the spleen, 330; Of the stomach, 334, 335; Of the tonsils, 250; Of the tympanum, 653; Of the vagina, 452; Of the veins, 636; Of the wind pipe, 242; Of the womb, 444.
Inflammatory blush, 165.
Influenza, 253.
Infusion of malt, 956.
Infusions, 986, 1068.
Ingrowing toe-nail, 654.
Inhalants, 273-275; Object of, 274.
Inhalation, atmospheric, 280.
Inhaling, mode of, 275.
Inhaling powder, 1082.
Injections, 899, 1069, 1115.
Injured, how to lift them, 569.
Injuries, chemical, 589; Mechanical, 592.
Insanity, 218; Causes of, 222; Cure of, 222; On one subject, 220.
Insects, bites of, 599.
Insensible perspiration, 111.
Insensibility, 146.
Instruments for throat, 244.
Interalgia, 253.
Intermarriages, improper, 64.
Intermittent fever, 522.
Intestinal obstruction, 351.
Intestines, 36; Cancer of, 350.
Introductory remarks, 7.
Iodia, 1142.
Iodide of iron, 1020; Of potassium, 1019; Of mercury ointment, 1075; Of zinc, 1063.
Iodine, 1018.
Ipecacuanha, 1019; American, 989; Comp. powder of, 1082; Syrup of, 1084; Wine, 1072.

Iris, 54; Inflammation of, 647.
Irish moss, jelly of, 957.
Iritis, 647.
Iron, 280, 1019; Ammonia citrate of, 1020; Black oxide of, 1020; Citrate of, 1020; Citrate of and quinia, 1020; Citrate of and strychnia, 1020; Comp. mixture of, 1073; Hydrated oxide of, 1020; Iodide of, 1020; Lactate of, 1020; Persalt of, 1021; Phosphate of, 1021; Powder of, 1021; Precipitated carbonate of, 1021; Protoxide of, 1021; Protoxide solution of, 1021; Protoxide solution of, with rhubarb and colombo, 1021; Protoxide solution with quinine, 1021; Protoxide solution with iodide of potash, 1022; Sulphate of, 1022; Syrup of iodide of, 1022; Syrup of iodide and manganese, 1022; Tartrate of and potassa, 1022; Tinct. of muriate of, 1022; Valerianate of, 1022.
Irritations of the spine, 640.
Irritants, external, 280; Counter, 1111.
Ischuria renalis, 375.
Isinglass, 1023; Jelly, 957.
Itch, 167; Barbers', 178.
Itching, 174; Of the external parts, 453; Of the genitals, 464.
Ivy, American, 989; Ground, 1013; Poisoning by, 567.
Jackson's itch, 178.
Jalap, 1023; Comp. powder of, 1082.
Jamestown weed, 1054.
Jaundice, 331.
Jaw, fractures of lower, 605; Dislocation of lower, 618.
Jejunum, 37.
Jelly, calf's feet, 959; Irish moss, 957; Isinglass, 957; Tapioca, 957.
Jerusalem oak, 1061.

- Jessamine**, yellow, 1062.
Jiu-Jitsu, 1189.
Joints, 27; Diseases of, 627; False, 605; Stiff, 629.
Juniper, 1023.
- Kidneys**, 39; Acute inflammation of, 366; Chronic inflammation of, 368; Bleeding from, 374; Bright's disease of, 371.
King's Evil, 529.
Kino, 1023; Comp. powder of, 1082.
Knee fractures, 612; Joints, dislocation of, 623; Pan, dislocation of, 623.
Kola Koloid, 1142.
- Labor**, 466.
Labyrinth, 57.
Lacerated wounds, 592.
Lachrymal canals, 56; Glands, 56; Sac, Inflammation of, 644.
Lacteals, 37.
Lactate of iron, 1020.
Ladies' Slipper, 1023; Yellow, 1062.
La Grippe, 254, 1096.
Laryngeal, shower syringe, 244.
Laryngismus stridulus, 501.
Laryngitis, 236; Follicular, 241.
Larynx, 46; Inflammation of, 241.
Laulanum, 1089; Poisoning by, 567.
Laurel, narrowleaf, 1030; Sheep, 1030.
Lavender, comp. tinct. of, 1091.
Laws, physiological of life and health, 59.
Lead, 1024, Acetate of, 1024; Colic, 355; Ointment, comp., 1076; Palsy, 208; Pipes, 95; Plaster, 1079; Plaster comp., 1078.
Leaders, conservative, 14.
Leaves, when to gather, 932.
Leeching, 578.
Leg, fractures of, 613; Bath, 912.
Lemon, 1024; Syrup, 1084; Water, 955.
- Lemonade**, 956; Flaxseed, 962.
Lemons, 1094; For colds and coughs, 1095; For complexion, 1096; For debility, 1095; For dyspepsia, 1095; For face, 1096; For fevers, 1095; For freckles, 1096; For the hair, 1096; For the hands, 1096; For head-ache, 1095; For heart-burn, 1095; For insect bites, 1096; For la grippe, 1096; For mosquito bites, 1096; For removing corns or warts, 1096; For rheumatism, 1095; For seasickness, 1096.
Leprosy, 171.
Lepra, 171.
Lettuce, 1024.
Leucorrhœa, 429.
Leucocytosis, 512.
Lice, 180.
Lichen, 172.
Life, completeness of, 126; The infancy of being, 59; Sickness during, 140; Stature and length of, 141;
Life root, 1024.
Ligaments, 28.
Ligature, 594.
Lightening, apparent death from, 563.
Lily, white pond, 1059.
Limbs, symptoms affecting, 135.
Lime, 1025; Chloride of, 1025; Water, 1025.
Linen clothing, 107.
Liniments, 1070, 1112.
Liquors, 966.
Liquorice, 1025.
Liver, 38; Acute inflammation of, 326; Chronic inflammation of, 327; Cirrhosis of, 329; Congestion of, 328; Complaints, diet in, 952; Of sulphur, 1042.
Liverwort, 1025.
Lobelia, 1026; Poultice, 1080; Tinct. of, 1089; Comp. tinct. of, 1091; And capsicum, comp. tinct. of, 1092; Vinegar, 1093.
Local palsy, 207.
Locked jaw, 210.
Logwood, 1026.
- Loneliness of the aged**, 548.
Longevity, human, 140.
Long sight, 650.
Looseness of the bowels, 360, 503.
Lost parts, reproduction of, 599.
Lotions, 1113.
Lower jaw, dislocation of, 618; Extremities, bones of 26.
Lumbago, 525.
Lumbar plexus, 52; region, 325.
Lumbricus, 365.
Lung fever, 296; Typhoid, 299; Other forms, 301; Diet in, 949.
Lungs, 40, 147; And heart 128; Swelling of (hypertrophy of), 289; Should be well filled, 121.
Lupus, 172.
Luxations, 617.
Lye, poisoning by, 565.
Lymphatics, 44.
Lypemania, 220.
- Maculae**, 175.
Magnesia, 1026; Carbonate of, 1027; Sulphate of, 1027.
Malaria, 521.
Male fern, 1027.
Malignant pustule, 589.
Malt, infusion of, 956.
Mammary abscess, 477.
Mandrake, 1027.
Mania, 220; A Portu, 191.
Manna, 1028.
Marks, mother's, 174.
Married ladies' calendar, 480.
Marshmallow, 1028.
Marsh-rosemary, 1028.
Mastic, 1028.
Masturbation, 410.
Materia medica, 982-1064.
Matico, 1029.
Matterly pimples, 169.
Meadow cabbage, 1048; Saffron, 1029.
Meals, number of, 944.
Measles, 156; Diet in, 946; False, 165.
Measures, domestic, 984, 985.
Meats, 85; Americans eat too much, 90; Ma-

- jority of mankind eat no, 91; Mode of cooking, 551.
Meatus andetorius, 56.
Meatus, inflammation of, 651.
Mechanical injuries, 592.
Mediastinum, 40.
Medical treatment of the old, 555.
Medicated waters, 1071; Wines, 1072.
Medication and temperaments, 129.
Medicine, progress of, 6.
Medicine chest, articles for, 983.
Medicines and their preparations, 982; Patent and proprietary, 1141.
Medulla oblongata, 50.
Medullary cancer, 631.
Megrims, 231.
Melancholy, 220.
Melanosis, 631.
Mellin's food, 1143.
Membrane synovial, 28.
Menopause (turn of life), 449.
Menorrhagia, 432.
Menses, absence of, 430; Cessation of 439; Establishment of, 416.
Menstruation, disturbance of, 424; first symptoms of, 417; Painful, 435; Profuse, 432.
Mercury, bichloride of, 1006; Ointment of, nitrate of, 1075; Ointment of red iodide of, 1075.
Mesenteric disease, 507.
Mesentery 38.
Metastasis, 525.
Metauer's aperient, 1073.
Metric weights, 985.
Metritis, 444.
Midwifery, 460.
Milk, 82; Coffee, 961; Crust, 170; For convalescents, 941; For infants, 486, 956; For old persons, 552; Ground rice, 958; Leg, 473; Mothers', 487; Porridge, 958; Sickness, 344; Sterilization of, 488; And soda water, 960; Sugar of, 277.
Milkweed swamp, 1055.
Mind, derangement of, 218; How it gets knowledge, 60; State of, in dieting, 80.
Mindererus, spirit of, 990.
Mineral poisons, 565.
Miscarriage, 464.
Miscellaneous diseases, 510; Prescriptions, 1116.
Mitral valves, diseases of, 285.
Mixtures, 1072.
Modern diseases, 542; Surgery, 572.
Modus operandi of water, 899.
Moles, 175, 179.
Monkshood, 1029.
Monomania, 220.
Moral treatment of infants, 491.
Morphia, 1034.
Morphine, poisoning by, 567.
Mortality in cold weather, 553.
Mortification, 581.
Mosquitos, bites of, 599.
Mother's cordial, 1085; Marks, 174.
Motherwort, 1029.
Mountain laurel, 1030.
Mouth, care of, 1162; Follicular inflammation of, 497; Gangrene of, 498; Inflammation of, 496.
Mouth-bath, 917.
Mucous membrane, inflammation of, 241.
Mucous tissue, 18.
Mucus, 17.
Mullein, 1030.
Mumps, 256.
Muriate of ammonia, 990; Of soda, 1050.
Muriatic acid, 987; Poisoning by, 566.
Murmurs, breathing, 262; Of the heart, 317.
Muscae volitantes, 648.
Museles, 29; Action of, 33; And bones, 128; Number of, 33; Shape of, 30.
Muscular and nervous derangement from wounds, 210.
Muscular tissue, 19.
Mustard, 1030; Poultice, 1080; Volatile oil of, 1030; Whey, 959.
Mutton broth, 962.
Myopia, 649.
Myrrh, 1030; Comp. tinct. of, 1092.
Naevus, 174.
Naphtha, 1031.
Napthalin, 1031.
Narcotics, 1108.
Nasal catarrh, 237; Duct, 56; Shower syringe, 245.
Natural surgery, 585.
Nature and destination of food, 73.
Nausea during pregnancy, 462.
Neck, symptoms affecting, 133.
Necrosis, 626.
Nephritis, 366.
Nerve root, 1062; Tonics, 1105, 1106.
Nerves, cranial, 50; Diseases of brain and, 188; Optic, 51, 54; Pain of, 216; Of skin, disordered, 174; Spinal, 52; Sympathetic, 48.
Nerve tonics, 1105, 1106.
Nervous complications in dyspepsia, 336; Derangement from wounds, 210; Diseases, effects of, 67; Headaches, 230, 233; System, 49, 59; System sympathetic, 67; System, symptoms affecting, 135; Tissue, 20.
Nettle rash, 164.
Neuralgia, 216; Of the heart, 321.
Neutral mixture, 1040.
Neutralizing cordial, 1086; Extract, 1073; Powder, 1082.
New Jersey tea, 1044.
Nightmare, 227.
Nightnurse, 921.
Night-sweats, 280.
Nipples, sore, 463, 478.
Nitrate of mercury ointment, 1075; Of potassa, 1032; Of potash, poisoning by, 566; Of silver, 1031.
Nitre, 1032; Sweet spirits of, 1032.
Nitric acid, 987; Poisoning by, 566.
Nitric ether, spirits of, 1052.
Nitrogenous foods, 75.
Nitro-muriatic acid, 987.

- Nose**, 147; **Bleeding** from, 654; **Foreign** substances in, 655; **Fractures** of, 605.
Nose bath, 916.
Noxious vapors, apparent death from, 560.
Nurse, activity of, 931; **Wet**, 484.
Nursing bottles, 486; **Sick** children, 492; **Sore** mouth, 477; **women**, 484.
Nutmeg, 1032.
Nutrition table, 75.
Nutritive fluid, 961.
Nux vomica, 1032.

Oak, white, 1059.
Oatmeal gruel, 962; **Poultice**, 1079.
Oats, 85.
Objects of breathing, 118; **Of** clothing, 106.
Obstruction of intestines, 351.
Oesophagus, 36.
Oil of cajuput, 1033.
Oil of mustard, volatile, 1030.
Oil of turpentine, 1033.
Oil glands, 48; **Glands** disordered, 176; **Nut**, 998.
Ointments, 1074, 1076, 1111.
Old age and its diseases, 546; **Diet** in, 81; **Preservation** of health in, 550.
Oleaginous foods, 79.
Olive oil, 1033.
Omentum, 38.
Onion, 1033; **Poultice**, 1080.
Operations, surgical, preparations for, 574.
Ophthalmia, catarrhal, 646; **Purulent** (Egyptian), 645; **Of** children, 646; **Scrofulous**, 646; **Tarsi**, 644.
Optic nerve, 54.
Opium, 1033; **Camphorated** tinct. of, 1092; **Liniment**, 1070; **Poisoning** by, 567; **Tinct.** of, 1089.
Opodeldoc liniment, 1071.
Orange blossoms, 1144; **Peel**, 1034; **Peel**, tinct. of, 1088; **Whey**, 960.
Orbits, 56.
Orchitis, 406.

Organized compounds, 17.
Organs, digestive, 35; **Of** hearing, 56; **Of** circulation, 41; **Of** secretion, 45; **Of** sight, 54; **Respiratory**, 40; **Vocal**, 46.
Origanum, 1034.
Osmidrosis, 176.
Osseous tissue, 19.
Otalgia, 652.
Otitis, 653.
Otorrhœa, 651.
Oval bath, 917.
Ovarian disease, 938; **tumors**, 450.
Ovaries, 420; **Inflammation** of, 426.
Ovaritis, 426.
Ovum, 418.
Oxalic acid, poisoning by, 566; **Deposits** in urine, 383.
Oxide of Iron, hydrated, 1020; **Of** zinc, 1063; **Of** zinc ointment, 1075.

Pack, half, 906; **Wet** sheet, 904.
Pail douche, 910.
Pain, 148; **Of** the nerves, 216; **Symptoms** indicated by, 136; **Sudden** disappearance of, 936.
Painful menstruation, 435.
Painter's colic, 355.
Pallidness, when a bad symptom, 936.
Palpitation, anæmic, 320; **Of** the heart, 320, 463; **Nervous**, 320.
Palsy, 205; **Diet** in, 948; **Lead**, 208; **Local**, 207; **Shaking**, 207.
Panada, 956.
Pancreas, 38.
Papillæ, 173.
Papulous scall, 170.
Paralysis, 205; **Of** one side of body, 206; **Of** lower parts of body, 206; **Of** the aged, 557.
Paraplegia, 206.
Paregoric elixir, 1092.
Parilla, yellow, 1063.
Paronychia, 628.
Parotid gland, 36.
Parotitis, 228.
Parsley, 1034; **Comp.** infusion of, 1069.
Parsnips, 87.
Partridge berry, 1035; **Comp.** syrup of, 1085.

Passive congestion of the liver, 328; **Exercise**, 101.
Patches, colored, on skin, 175.
Patella, dislocation of, 623; **Fracture** of, 612.
Patent and proprietary medicines, 1141.
Patients, how to examine, 132.
Patient, position of, 936.
Peach, 1035.
Pear leaf wintergreen, 1045.
Pearlash, purified, 1040.
Peas, 87.
Pectoriloquy, 272.
Pelvis, fracture of, 610.
Pemphigus, 169.
Pennyroyal, 1035.
Pepper, red, 1001; **water**, 1058.
Peppermint, 1035.
Pepto-mangan, 280.
Percussion sounds, 308.
Perennial plants, when to gather, 982.
Pericarditis, 313.
Pericardium, 41.
Periods of life, 131.
Periostitis, 625.
Peritoneum, 324; **Acute** inflammation of, 345; **Chronic** inflammation of, 345.
Peritonitis, 345.
Pernicious anæmia, 512; **Intermittent** fever, 520.
Perpetual calendar for married women, 480.
Persalt of iron, 1021.
Persimmon, 1035.
Perspiration, 111; **Symptoms** indicated by, 138.
Perspiratory tubes, 49, 111.
Peruvian bark, 1035; **Comp.** tinct. of, 1092.
Pessaries, 447.
Petroleum, 1037.
Phagedenic ulcers, 584.
Pharmacy, 1065.
Pharyngeal shower syringe, 245.
Pharyngitis, 240; **Follicular**, 240.
Pharynx, 36; **Inflammation**, 240.
Philosophy of breathing, 117; **Of** chest sounds, 263.

- Phlebitis**, 636; Chronic, 637.
Phlegmasia dolens, 473.
Phosphate of iron, 1021.
Phosphates, comp. syrup of, 1085.
Phosphatic deposits in urine, 382.
Phosphorus, 276, 1037.
Phrenitis, 189.
Phthisis, 259.
Physical culture, 1169; And Jiu-Jitsu, special course in, 1199.
Physical properties of the body, 18.
Physiological laws, 59.
Physiologists, 9.
Phytoline, 1142.
Pia mater, 50; Inflammation of, 189.
Pigeon berry, 1039.
Pile ointment, 1076.
Piles, 358, 632; During pregnancy 462.
Pills, 1077.
Pimples, dry, 171; Mat-tery, 169; Watery, 165;
Pin worms, 365.
Pink root, 1037.
Pinna, 56.
Pipsissewa, 1037.
Pityriasis, 171.
Placenta prævia, 477.
Plantain, 1038.
Plants and animals, re-lation of, 120; Medici-nal, when to gather, 982
Plasters, 1077.
Plastic lymph, 577; Diet in, 950.
Plethoric headaches, 229, 232; Causes of, 229.
Pleurisy, 292; Diet in, 950; Root, 1038.
Pleuritis, 292.
Plunge baths, 911.
Pneumonia, 296; Bron-cho, 300; Typhoid, 299; Diet in, 949
Pneumothorax, 290.
Podophylin, 1027.
Poison hemlock, 1038; Hemlock ointment, 1075; Oak, 1039.
Poisoned wounds, 592-599.
Poisoning, 149.
Poisoning accidents, 564. antidotes of, 564.
Poisons, antidotes of, 564; Mineral 565; Vegeta-ble, 566.
Poke, 1039, 1098; Oint-ment, 1075; Root poul-tice, 1080.
Polypus, 632; Of the heart, 322; Of the womb, 442.
Pompholix, 169.
Pond lily, white, 1059, 1099.
Poplar, 1056.
Pores of the skin should be kept open, 112.
Porridge-milk, 958.
Porridge, French milk, 958.
Porriago, 179.
Position of patient, im-portance of, 936.
Potassa, 1039; Acetate, 1040; Bicarbonate, 1040; Bitartrate, 1040; Carbonate of, 1040; Chlorate of, 1040; Ci-trate of, 1041; Solu-tion of, 1041; Solution of citrate of, 1041; So-lution of arsenate of, 1051; And soda tar-trate of, 1050; Sul-phate of, 1041; Tar-trate of, 1041.
Potassium, 1041; Bro-mide of, 1041; Cyan-uret of, 1042; Sulphur-et of, 1042.
Potatoes, 87.
Poultices, 1079.
Powders, 1080.
Powder of iron, 1021.
Pox, 394.
Pregnancy, baths during, 902; Prevention of, 465; Treatment of, 461; Tubal, 454.
Prejudice and antipa-thies, 934.
Preparations of medi-cines, 982; Pharma-ceutical, 1065.
Prepared calamine, 1063; Chalk, 1002
Presbyopia, 650.
Prescriptions, 1100.
Preservation of old peo-ple's health, 550.
Pressure of the atmos-phere, 117.
Prevention of pregnancy, 465; Of typhoid, 518.
Prickly ash, 1042; Elder, 1042.
Princess pine, 1037.
Private organs, symp-toms affecting 135.
Probang, now superced-ed, 245.
Profuse menstruation, 432.
Prognostics, 935.
Progress of medicine, 6.
Prolapsis ani, 505; Uteri, 445.
Pronouncing dictionary, 1405.
Proofs of death, 979.
Proportions of animal and vegetable food, 91.
Prophylaxis, 537.
Propriety of imparting physiological knowl-edge, 456.
Proprietary and patent medicines, 1141.
Protoxide of iron, 1021.
Prurigo, 172; Of the Vul-va, 453.
Pruritis, 174.
Prussic acid, poisoning by, 567.
Psoriasis, 171.
Ptisan suet, 794.
Ptosis, 644.
Puerile respirations, 263.
Puerperal fever, 474; Convulsions, 476.
Pulmonary apoplexy, 290; Artery, 42; Con-sumption, 264.
Pulmonic cherry cordial, 249.
Pulse, symptoms indica-ted by, 137.
Pumpkin, 1098; Seeds, 1043.
Punctured wounds, 592, 597.
Punches, 965.
Purges, 1101.
Purple disease, 532.
Purple spots, 937.
Purpura hemorrhagica, 532.
Purtussis, 462.
Purulent ophthalmia, 645; Of children, 646.
Pussy willow, 995.
Pyæmia, 582.
Pyrosis, 342.
Quassia, 1043.
Queen of the meadow, 1043.
Queen's root, 1043.
Quinacetine, 1144.
Quinia, sulphate of, 1036; valerianate of, 1037.
Quinsy, 250.

- Rabies, 208.
 Radium, 670.
 Ramollissement, 190.
 Rashes on children, 493.
 Recipes, 1100.
 Rectum, 37.
 Red chickweed, 1044;
 Clover, 1044; Iodide of
 mercury ointment,
 1075; Pepper, 1001;
 Oxide of lead, Plaster,
 1079; Osier, 1055;
 Root, 1044; Rose,
 1044; Saunders, 1044;
 Willow, 1055.
 Reduction of fractures,
 601.
 Refreshing drinks in fev-
 ers, 955.
 Refrigerants, 1109.
 Remittent fever (bilious),
 520.
 Rennet whey, 959.
 Reproduction of life, 455;
 Of lost parts, 599.
 Resin cerate, 1066; Plas-
 ter, comp., 1078.
 Resolution, 577.
 Respiratory organs, 40.
 Rest and sleep, 103.
 Restorative, 960; Wine
 bitters, 1072.
 Retention of urine, 376;
 An unfavorable sign,
 937.
 Retina, 55.
 Retroflexion of womb,
 447.
 Retroversion of womb,
 446.
 Rhatany, 1044.
 Rheumatic headache,
 232, 233.
 Rheumatism, 525, 1095;
 Acute, 525; Chronic,
 526; Cure for, 1201;
 Diet in, 948, 974.
 Rhubarb, 1045; Aromatic
 syrup of, 1084; Comp.
 tinct. of, 1092; Comp.
 powder of, 1082; And
 potassa, Comp. powder
 of, 1082; And potassa,
 comp. syrup of, 1086;
 And potassa, extract
 of, 1073; Tinct. of,
 1089.
 Ribs, fractures of, 609.
 Rice, 86; Gruel, 956;
 Water, 954.
 Rickets, 507.
 Riding as exercise, 102.
 Rigors, 936.
 Ringworm, 180.
 Rochelle salts, 1050.
 Roentgen ray, 668.
 Roman baths, 112, 976.
 Roots, when to gather,
 982.
 Rosemary, 1045.
 Roseola, 165.
 Roserash, 165.
 Rose, red, 1044.
 Rose water ointment,
 1075; Willow, 1055.
 Rosin, 1044.
 Rotting of teeth, 684.
 Roman leaved pyrola,
 1045.
 Rubbing, wet sheet, 907.
 Rubeola, 156.
 Rue, 1043.
 Rules for using water,
 901; For feeding in-
 fants, 487.
 Running and leaping, 99.
 Rupia, 169.
 Rupture, 638.
 Ruptures, tendons of, 625.
 Russian baths, 976.
 Rye, 86; Spurred, 1052.
 Saccharine foods, 74.
 Sacral plexus, 52.
 Saffron, 1046.
 Sage, 1046; Tea, 955.
 Sago gruel, 957.
 Sailing as exercise, 101.
 Saint Ignatius' bean,
 1053; Vitus' dance,
 213.
 Sal-ammoniac, 990.
 Salep powders, comp.,
 956.
 Saline mixture, 1074.
 Salpingitis, 451.
 Salt, common, 1050;
 Glauber's, 1050; Tar-
 tar of, 1040.
 Saltiness of the ocean, 96.
 Saltpetre, 1032; Poison-
 ing by, 566.
 Salt Rheum, 166.
 Sanguinarin, 995.
 Sarsaparilla, 1046; Comp.
 syrup of, 1086; False,
 1049.
 Sassafras, 1046.
 Savin, 1047; Cerate, 1066.
 Scabies, 167.
 Scalds, 589.
 Scale eruptions, 170, 397.
 Scammony, 1047.
 Scarification, 598.
 Scarf-skin, 47.
 Scarlatina, 157; Diet in,
 947.
 Scarlet fever, 157.
 Sciatica, 218.
 Sclerotic, coat of eye, 54.
 Scocke, 1039.
 Scorbutus, 530.
 Scrofula, or King's evil,
 529.
 Scrofulous ophthalmia,
 646.
 Scrotum, blood in, 636;
 Water in, 635.
 Scull cap, 1047, 1099.
 Scurvy, 530.
 Sea bathing, 898.
 Sea sickness, 343, 1096.
 Secretion, organs of, 45.
 Sedatives, 1109.
 Seidlitz powders, 1050.
 Self-pollution, 410.
 Semen, 458.
 Semilunar valves, 41; Di-
 seases of, 317.
 Seneka, 1074; Syrup of,
 1085.
 Senna, 1048; Confection
 of 1067; Comp. infusion
 of, 1069; Comp. syrup
 of, 1087; And jalap,
 tincture of, 1092.
 Sensations, 61; Agree-
 able, 62; Effect on dis-
 position, 63; Kinds of,
 61; Moral, uses of, 61;
 Strength of, 61; Un-
 pleasant, 63.
 Septic and aseptic, 572;
 Wounds, 592.
 Septicaemia, 474.
 Serous tissue, 18.
 Setting of fractures, 601.
 Sex, 131.
 Sexual diseases, 394; Pre-
 vention of, 409.
 Sexual organs, descrip-
 tion of, 419.
 Shaking palsy, 207.
 Sheep laurel, 1030.
 Shingles, 166.
 Shoes, thin, 109.
 Short sight, 649.
 Shoulder blade, fracture
 of, 607; Joint, disloca-
 tion of, 619.
 Shower bath, 909.
 Shrinking of brain, 198;
 Heart, 313.
 Shrubby trefoil, 1048.
 Sick, care of, 62; Chil-
 dren, how to nurse,
 492; Headache, 230,
 232; How to lift them,
 568.
 Sick-room, choice of, 920;
 Beds and bedding in,
 922; Cleanliness in,

- 924; Cookery for, 954; Darkening of, 925; Domestic management of, 920; Fumigation of, 926; No cooking in, 922; Prejudices and antipathies in, 934; Sofa or reclining chair in, 921; Temperature in, 924; Unhired attendants in, 933; Ventilation in, 922.
- Sickness during life, 140.
- Sight, organs of, 54; Long and short, 649; Weakness of, 648.
- Signs and abbreviations, 894.
- Silk clothing, 108.
- Simple ointment, 1075; Cerate, 1066; Home remedies, 1139; Syrup, 1083; Wounds, 592.
- Sin gultus, 226.
- Sinus, 581.
- Sippets, 960.
- Sitz bath, 912.
- Skin, 47, 149; Care of, 1153; Care of, of the aged, 553; Color of, disordered, 175; Diseases, 155; Nerves of, disordered, 174; Offices of, 110; Scarf and true, 155.
- Skull, fractures of, 605.
- Skunk cabbage, 1048.
- Sleep, 103, 1161; Amount of, 106; Disturbed, 227; Natural position for, 105; Of children, 490; Preparation for, 106.
- Sleeping apartment, 920; In small room, 118; Room, 104; Room, beds and bedding in, 105; Room, fire in, 104; Room, nightdress in, 105; Room, open fireplace in, 104; Room, open windows in, 104.
- Sleeplessness of the aged, 554.
- Sleigh-riding as exercise, 102.
- Slippery elm, 1049; Poultice, 1080.
- Sloughing, 581.
- Sluice bath, 910.
- Smallpox, 160; Diet in, 947.
- Small spikenard, 1049.
- Smartweed, 1058.
- Snake root, 1047; Canada, 1060; Virginia, 1058.
- Snakes, bites of, 599.
- Soap, 1049.
- Soda, bicarbonate of, 1050; Borate of, 1050; Sulphate of, 1050; Sulphite of, 1050; Tartrate of and potassa, 1050.
- Soda-water and milk, 960.
- Sodium, 1049; Chloride of, 1050.
- Soft cancer, 631.
- Softening of the brain, 190; Of the heart, 312.
- Solomon's seal, 1051.
- Soluble tartar, 1041.
- Soothing inhalant, 274.
- Sore mouth, children's, 496; Mouth, nursing, 477; Nipples, 463, 478; Throat, clergyman's, 240; Throat, quinsy, 250.
- Sores, 151.
- Soup, vegetable, 958.
- Sounds of the heart, 307; Altered, 308.
- Spanish flies, 1051; Cerate, 1066; Liniment, 1070; Poisoning by, 567.
- Spasm of glottis, 501; In stomach, 342.
- Spearmint, 1051.
- Speculum, 421.
- Spermaceiti, 1052; Ointment, 1076.
- Spermatozoa, 458.
- Spiced plaster, 1078.
- Spiders, bites of, 599; Web, 1052.
- Spikenard, small, 1049.
- Spinal cord, 47; Diseases of, 201; Inflammation of, 202.
- Spinal nerves, 52.
- Spine, deformities and irritation of, 640.
- Spirits of nitric ether, 1052; Of ammonia, aromatic, 990.
- Spleen, 38; Acute inflammation of, 330; Chronic inflammation of, 330.
- Splenitis, 330.
- Sponge, 1052; Baths, 914.
- Spotted acne, 177.
- Sprains, 624.
- Spurred rye, 1052.
- Squill, 1053; Syrup, 1085; Vinegar, 1093.
- Squinting, 650, 936.
- Squirting cucumber, 1059.
- St. Anthony's fire, 163; Ignatius' bean, 1053; Vitus' dance, 213.
- Stagger weed, 1057.
- Star grass, 1053, 1099.
- Starch foods, 83.
- Starch and sugar, 83.
- Stature and length of life, 141.
- Sterility, 455; Causes of, 459.
- Sterilization of milk, 488.
- Stethoscopes, 261.
- Stiff joint, 629.
- Stillingia, 1043; Comp. syrup of, 1086.
- Stimulants, 1109.
- Stings of insects, 599.
- Stomach, 36 151; Affections of, 951; Bile in, 72; Acute inflammation of, 334; Chronic inflammation of, 335; Cramp in, 342, 463; Movement of, 71; Spasms in, 342, 463; Ulcer of, 666.
- Stomatitis, erythematic, 496.
- Stone in bladder, 378, 387.
- Storax, 1053.
- Strabismus, 650.
- Stramonium, 1054; Ointment, 1075; Poisoning by, 567.
- Strength and warmth derived from different articles of food and drink, 139.
- Stricture, 406; Of the bowels, 351.
- Strong lye, poisoning by, 566.
- Structure of the body, 16.
- Strychnine, 1032; Poisoning by, 567.
- Stye, 643.
- Styptics, 594.
- Subacetate of copper, 1006.
- Subacetate of lead, cerate of, 1065.
- Submaxillary gland, 35.
- Succus, alterans, 1142.
- Sudorific tinct., 1093.
- Suet ptisan, 959.
- Suffocation, 560.
- Sugar foods, 83; Of lead, poisoning by, 566; Of milk, 277.

- Sulphate of copper**, 1006;
 Of iron, 1022; Of zinc, 1064.
Sulphur, 1054; Ointment, comp., 1077.
Sulphuric acid, 987; Poisoning by, 566.
Sumach, 1054.
Summer complaint of infants, 504.
Sunflower, 1054.
Sunstroke, 204.
Super-carbonate of soda, 1050.
Supertartrate of potassa, 1040.
Suppers, late, 106.
Suppression of urine, 375.
Supra-renal capsules, disease of, 370.
Suppuration, 580; Of the brain, 191.
Surgery, natural, 585.
Surgical diseases, 571-657.
Sutures, 594.
Swallowing, difficulty of, 936.
Swamp dogwood, 1055; Milkweed, 1055.
Swathing, 463.
Sweat glands, 49; Disorders of, 176.
Sweating process, 903; In consumption, 937.
Sweet fern, 1055; Flag, 1055; Gum, 1055; Oil, 1033; Spirits of nitre, 1032, 1052; Whey, 960.
Swelling, 150; Of the legs, sudden disappearance of, 938; Of the lungs, 289; Of the lower limbs, 464.
Swinging as exercise, 102.
Sycosis, 178.
Sympathetic nervous system, 52, 54, 67; Nerve, 52.
Symptoms, 128; Table of, 132-138; That quickly tell what your complaint is, 142.
Syncope, 226.
Synovial degenerations, 627.
Synovial membrane, 28.
Syphilis, 394.
Syringe, laryngeal shower, 244; Nasal shower, 245; Pharyngeal shower, 245; Uterine, 426; Mode of using, 247.
Syrups, 964, 1083.
System, nervous, 49, 59; Urinary 39.
Table exhibiting the difference between small pox, varioloid, scarlet fever and measles, 160; Of foods, 77, 84, 85; Of symptoms of diseases, 132.
Tag alder, 1055.
Tamarac, comp. tinc. of, 1092.
Tamarinds and whey, 960.
Tannic acid, 988.
Tansy, 1055.
Tape worm, 365.
Tapioca, 1056; Jelly, 957.
Tar, 1056; Ointment, 1076; Plaster, comp., 1078.
Tartar on the teeth, 663; Soluble, 1041; Whey, 959.
Tartaric acid, 988.
Tea and coffee, 93; Headache from, 229; Beef, 958, 962; Garfield, 1142; New Jersey, 1044; Sage, 955.
Teeth, 34; Care of, 662; Cleaning of, 665; Composition of, 35; Cutting of, difficult, 498; Diseased, influence of on the health, 666; Filling, 664; First, 665; Names of, 34; Number of, 34; Origin of, 34; Rotting of, 662; Use of, 35.
Temperance, 92; Good results of, 92.
Temperaments, 128, 129; And medication, 129.
Temperature of the body, 138; Symptoms indicated by, 138.
Tendons, ruptures of, 625.
Tepid bath, 896; Effects of, 897.
Tetanus, 210.
Tetter, 166; Crusted, 170.
Thigh bone, fractures of, 610.
Thimbleweed, 1056.
Thorn apple, 1054.
Thoroughwort, 1056.
Throat, 152; Diseases of, 236.
Throat diseases, curability of, 252; Worse at night, 243; Instruments for treatment of, 243-248; Symptoms affecting, 134.
Thyroid cartilage, 46; Tablets, 1142.
Tic douloureux, 217.
Tight dressing, 121.
Tinctures, 986, 1087.
Tissues, 18, 19.
Tobacco, 1056.
Toe-nail, ingrowing, 654.
To stop flow of blood, 658.
To prepare and concoct wines, tonics and beverages for the convalescent, 963.
To reduce flesh, 971.
To recover persons apparently drowned, 560.
Tolu syrup, 1085; Tinct. of, 1089.
Tomato, 1098.
Tongue, symptoms affecting, 133.
Tonics, 1104; And cathartic, 1103.
Tonsilitis, 250.
Tonsils, acute inflammation of, 250; Chronic inflammation of, 251.
Toothache, 664; Tree, 1042.
Torticollis, 642.
Tourniquet, 593.
Towel and sponge bath, 914; Coarse in bathing, 116.
Tracheitis, 242.
Trailing arbutus, 1056; Comp. infusion of, 1069.
Trance, 213.
Traveling, 121; For consumptives, 284; For the poor, 123; Means of, 122; Seasons for, 122.
Treatise on physical culture, 1169.
Trees, cultivation of, 120.
Trefoil, shrubby, 1048.
Tricuspid, 41.
Tricuspid valves, 306.
True physician, the, 14; Skin, 48.
Trumpet weed, 1043.
Trunk, bones of, 23.
Tubal pregnancy, 454.
Tubercular consumption, 263; Causes of, 269; Eruptions, 397.

- Tubes**, disorders of, 176; Perspiratory, 111.
Tulip, 1099.
Tulip tree, 1056.
Tumors, 629; Encysted, 177, 633; Encephaloid, 631; Fatty, 631; Of the brain, 191; Of the heart, 312; Of the ovaries, 450; Of the womb, 448.
Turkey corn, 1057.
Turkish baths, 976.
Tumeric, 1057.
Turn of life, 439.
Turner's cerate, 1013.
Turnips, 87.
Turpentine liniment, 1071.
Twist in bowel, 351.
Tympanitis, 354.
Tympanum, 57; Inflammation of, 653.
Typhoid fever, 299, 517; Prevention of, 518; Pneumonia, 299.
Tylosis, 173.
Ulceration, 585; And ulcers, 585; Of the bones, 625; Of the neck of the womb, 422.
Ulcer of the stomach, 666.
Unbolted wheat flour, 79.
Unhired attendants, 933.
Unicorn root, 1053; False, 1015.
Union by first intention, 594.
Unnatural growth of bones, 626.
Upland cranberry, 992.
Upper arm bone, fractures of, 607; Extremities, bones of, 25.
Urate of ammonia in urine, 385; Calculus, 387.
Ureters, 39.
Urethra, 39.
Uric acid calculus, 387; Gravel, 380.
Urinary deposits, 378; Organs, diseases of in the aged, 557; System, 39.
Urine, 152, 153; Characteristics of, 379; Cystine deposits in, 386; Examination of, 379; Hippuric acid, deposits in, 385; Inability to hold, 377; Oxalic deposits in, 383; Phosphatic deposits in, 382; Retention of, 376, 937; Sources of, 378; Suppression of, 375; Symptoms indicated by, 137; Urate of ammonia in, 385.
Urinometer, 379.
Uses of the bones, 29; Teeth, 35.
Urticaria, 164.
Uterine hydatids, 443.
Uvula, elongation of, 249.
Vaccina, 162.
Vagina, inflammation of, 452.
Valerian, 1057; American, 1062; Ammoniated, tinct. of, 1093.
Valerianate of iron, 1022; Quinia, 1037; Zinc, 1064.
Value of foods, 75-77, 84, 85.
Valves, mitral, disease of, 317; Semilunar, disease of, 317; Mitral and tricuspid, 41.
Vapor baths, 115, 896.
Varicella, 162.
Varicocele, 640.
Varicose veins, 464, 637.
Variola, 160.
Varioloid, 162.
Varix, 637.
Vaseline, 1064.
Vegetable foods, 75, 89, 942; Poisons, 566; Soup, 958.
Veins, 43; Enlarged or varicose, 637; Acute inflammation of, 636.
Venereal diseases, 394.
Ventilation, 65; And air, 117; In sick room, 119.
Ventricles, 41, 306; Dilation of, 310; Enlargement of, 308.
Veratrin, 989.
Verdigris, poisoning by, 565.
Verruca, 173.
Vertigo, 227.
Vervain, 1057.
Vesicles, 40.
Vesicular eruptions, 397.
Vessels, absorbent, 44.
Vinegar, 1057.
Vinegar whey, 959.
Vinegars, 1093.
Virginia snake root, 1057; Comp tinct. of, 1093; Tinct. of, 1089.
Vision, imperfect, 648.
Vital properties of the body, 20.
Vitreous humor of the eye, 55.
Vitriol elixir, 1089; Poisoning by, 566.
Vocal cords, 47; Organs, 46.
Vomiting, 343.
Vulva prurigo, 453.
Wading foot baths, 915.
Wafer, ash, 1058.
Wahoo, 1058.
Walking, 98; Of infants, 491.
Warm baths for children, 496; bath, 896; Foot bath, 916.
Warts and corns, 173, 1096.
Wash-down bath, 914; Tub bath, 913.
Washes, 1113, 1115.
Water, 94, 943; Accidents on, 563; Ammonia, 989; Brash, 342; Chemical nature of, 94; Cleansing of, 96; Cold at meals, 70; Cure, 894; Division of, 94; External use of, 281; Gruel, 956; Horehound, 1058; Impurities in, 95; In chest, 291; In heart case, 319; In the head, 198; Internal use of, 903; Lime, 1025; Modus operandi, 899; Of ammonia, 989; Of the ocean, 96; Pipes, lead, 95; Prizing of, 96; Properties of, 95; Pure, essential to health, 94; Rain, 96; Rules for using, 901; Salt, 96; In scrotum, 635; Supply, 95; Use of in consumption, 281; For wounds, 594; Pepper, 1058; Quality of, 903.
Waters, medicated, 1071.
Watery pimples, 165.
Wave or sluice bath, 910.
Wax, 1059; In ear, 652.
Weakness of sight, 648.
Weaning, 489.
Wens, 633.
Weights, 984; French decimal, 985.
Wet bandages, 903; Dress, 905; Nurses,

- 484; Sheet folded, 906; Sheetpack, 904; Sheet, rubbing, 907.
- Wheat**, 85; Flour, unbolted, 79.
- Whey**, alum, 960; Mustard, 959; Orange, 960; Rennet, 959; Sweet, 960; Tartar, 959; Vinegar, 959; With tamarinds, 960; Wine, 960.
- White hellebore**, 1059; Hellebore ointment, 1076; Indian hemp, 1055; Liquid physic, 1074; Oak, 1059; Pond lily, 1059, 1099; Poplar, 1056; Swelling, 627; Vitriol, poisoning by, 566.
- Whitely exerciser**, 1207.
- Whites**, 429.
- Whitlow**, 628.
- Whooping cough**, 502, 936; Diet in, 951.
- Wild cherry**, 1059; Cherry bark syrup, 1085; Cucumber, 1059; Ginger, 1060; Indigo, 1060; Indigo ointment, 1076; Sarsaparilla, 1049; Snowball, 1044; Turkey pea, 1057; Woodbine, 989; Yam, 1060.
- Willow**, black, 995; White, 1060.
- Wind colic**, 353.
- Windows** in sleeping rooms, 104.
- Windpipe**, 40; Foreign bodies in, 656; Inflammation of, 242.
- Wine** for old persons, 552; Of American ash, 1144; Of comfrey, comp., 1072; Of Golden seal, comp., 1072; Of ipecacuanha, 1072; Whey, 960.
- Wines**, Tonics, etc., for convalescent, 963; Medicated, 1072.
- Wingseed**, 1048.
- Winter**, fatty foods in, 80.
- Wintergreen**, 1060; Pearl leaf, 1045.
- Witch-hazel**, 1060.
- Wolfsbane**, 1061.
- Woman beautiful**, 1148.
- Womb** and appendages, 419; Antiflexion of, 447; Antiversion of, 446; Cancer of, 449; Displacements of, 447; Enlargement of neck of, 422; Falling of, 445; Falling over of, 446; Inflammation of, 444; Inflammation of neck of, 422; Polypus of, 442; Retroflexion of, 447; Retroversion of, 446; Sinking of, 460; Tumors of, 448; Ulceration of, 422.
- Woolen clothing**, 108.
- Worm powder**, 1082.
- Worms**, 153, 176, 365.
- Wormseed**, 1061.
- Wormwood**, 1061.
- Wounds**, 592; Bleeding from, 656; Contused and lacerated, 598; Derangement from, 210; Gunshot, 599; How to unite, 597; Incised, 593; Of various kinds, 592; Fissured, 599; Punctured, 597; Rules for examining and dressing, 595; Septic, 592.
- Wrinkles**, 1155.
- Wrist**, dislocation of, 620; Fracture of, 609.
- Wry neck**, 642.
- X-ray**, 668.
- Xanthoxylin**, 1042.
- Yam**, wild, 1061.
- Yarrow**, 1062.
- Yeast**, 1062; Foul-tice, 1079.
- Yellow dock**, 1062; Comp. syrup of, 1087; Fever, 524; Jessamine, 1062; Ladies' slipper, 1062; Parilla, 1063.
- Youth**, diet in, 81.
- Zinc**, 1063; Acetate of, 1063; Chloride of, 1063; Iodide of, 1063; Oxide of, 1063; Precipitated carbonate of, 1063; Sulphate of, 1064; Valerianate of, 1064.



INDEX

TO

HOMŒOPATHIC DEPARTMENT.

- Abdomen**, dropsy of, 851.
Absence of the menses, 812.
Abscess, 743.
Acne, 731.
After-pains, 818.
Alopecia, 729.
Amenorrhea, 812.
Amblyopia, 700.
Anemia, 773.
Angina Pectoris, 9.
Anthrax, 734, 742.
Apoplexia, 865.
Apoplexy, 865.
Armpits, inflammation of glands of, 739.
Arthritis, 833; Tubercular, 834.
Ascites, 851.
Asiatic cholera, 838.
Asthma, 721; Bronchial, 721; Hay, 708.

Baldness, 729.
Barber's itch, 730.
Beard, ringworm of, 730.
Bedsores, 836.
Bilious remittent fever, 848.
Bites of insects, 831.
Blackheads, 731.
Bladder, inflammation of, 774; Stone or gravel in, 778.
Bleeding after labor, 822; From the lungs, 728; From the nose, 703; From the stomach, 757; From wounds, 829.
Blepharospasm, 691.
Blood, from the uterus, profuse flow of, 813; In the urine, 778.
Body, ringworm of, 731.
Boils, 741.
Bone, death of, 835.
Bowels, inflammation of, 846; Looseness of, 758.
Brain, concussion of, 826; Fever, 865; Hypertemia of, 862; Inflammation of, 865.

Breast, broken, 820; Inflammation of, 820.
Bright's disease, acute, 781; Chronic, 782.
Broken breasts, 820.
Bronchial asthma, 721.
Bronchitis, acute, 719; Chronic, 721.
Bronchocele, 832.
Bruises, 830.
Bunions, 837.
Burns and scalds, 835.

Cancer of the intestines, 764; Of the liver, 764; Of the skin, 736; Of the stomach, 763.
Canker and thrush, 754.
Carbuncle, 742.
Care of medicines, 685.
Caries, 835.
Cataract, 694.
Catarrh, chronic nasal, 706.
Catarrhal conjunctivitis, 695.
Cephalalgia, 858.
Cerebro-spinal meningitis, 867.
Cessation of menstruation, 814.
Chafing in infants, 787.
Chicken pox, 795.
Chilblains, 745.
Childbed fever, 823.
Children, diseases of, 786; Jaundice in, 800.
Cholera, Asiatic, 838; Epidemic, 838; Infantum, 799; Morbus, 761.
Chlorosis, 805.
Chorea, 880.
Chronic nasal catarrh, 706.
Climacteric, 814.
Cold in the head, 705.
Cold, rose, 708.
Colic, 798; Painters', 846.
Concussion of the brain, 826.
Conjunctivitis, 695; Catarrhal, 695; Croupous, 696; Diphtheritic, 696; Granular, 696; Purulent, 695; Scrofulous, 696.
Consumption of the lungs, 725.
Constipation, 768.
Contusions, 830.
Convulsions, 789.
Cornea, specks on, 700; Ulcers of, 698.
Coryza, 790.
Cough, whooping, 718.
Cramps in the legs, 882; Of the stomach, 762.
Cramp, writer's, 881.
Croup, 792; False, 793; Membranous, 792; Spasmodic, 793.
Croupous conjunctivitis, 696.
Crying, 787.
Cystitis, 774.

Dance, St. Vitus', 880.
Deafness, 689.
Death of the bone, 835.
Delirium, drunkard's, 863; Tremens, 863.
Dementia, 887.
Dentition, disturbances of, 788.
Derangement, mental, 882.
Diabetes mellitus, 780.
Diarrhœa, 758; Chronic, 759.
Difficult urination, 819.
Digestive organs, diseases of, 753.
Dilatation of the heart, 772.
Diphtheria, 714.
Diphtheritic conjunctivitis, 696.
Diseases of the digestive organs, 753; Of the ear, 686; Of the eye and eyelids, 690; Of the general system, 838; Of the genito-urinary organs, 774; Of infants and children,

- 786; Of the nervous system, 858; Of the organs of circulation, 770; Miscellaneous, 838; Of the respiratory organs, 703; Surgical, 826; Of women, 805.
- Dislocations**, 828.
- Displacement** of the uterus, 808.
- Dropsy**, 850; Of the abdomen, 851.
- Drunkard's delirium**, 863.
- Dysentery**, 760.
- Dysmenorrhea**, 811.
- Dyspepsia**, 755.
- Ear**, diseases of, 686; Eczema of the external, 687; Inflammation of the external, 686.
- Earache**, 688.
- Ears**, running of, 689.
- Eczema**, 750-787.
- Eczema** of the external ear, 687.
- Emaciation**, extreme, 804.
- Enlarged tonsils**, 791.
- Enuresis**, 777.
- Epidemic cholera**, 838; Influenza, 709.
- Epilepsy**, 874.
- Epileptic Fits**, 874.
- Epistaxis**, 703.
- Epithelioma**, 736.
- Erysipelas**, 732.
- Excessive secretion** of milk, 821.
- Eye and lids**, diseases of, 690.
- Eyelids**, inflammation of the lining membrane, 695; Inflammation of, 690; Twitching of, 691.
- Eyes**, rheumatic pains of, 699; Watery, 700.
- False croup**, 793.
- False pains**, 817.
- Felon**, 737.
- Fever and ague**, 847; Bilious remittent, 848; Brain, 865; Childbed, 823; Hay, 708; Intermittent, 847; Lung, 723; Puerperal, 823; Putrid, 841; Rheumatic 848; Scarlet, 795; Ship, 841; Simple, 794; Spotted, 867; Typhoid, 839; Typhus, 841; Yellow, 842.
- Fevers**, specific indications for remedies, 853.
- Fits**, 789; Epileptic, 874.
- Forms of medicines** for administration, 684.
- Fractures**, 828.
- Furunculus**, 741.
- Gall-stones**, 766.
- Gangrene**, 836.
- General conditions**, 686.
- Genito-urinary organs**, diseases of, 774.
- Goitre**, 832.
- Gonorrheal conjunctivitis**, 695.
- Gravel** in kidneys or bladder, 778.
- Granular conjunctivitis**, 696.
- Green sickness**, 805.
- Grip**, 709.
- Groin**, inflammation of glands of, 739.
- Hardness of hearing**, 689.
- Hay asthma**, 708; Fever, 708.
- Headache**, 858.
- Head**, cold in, 705; Rush of blood to, 862; Swimming of, 861.
- Hearing**, hardness of, 689.
- Heart**, dilatation of, 772; Hypertrophy of, 772; Inflammation of the membranes of, 770; Neuralgia of, 773; Palpitation of, 773; Weak, 773.
- Hematuria**, 778.
- Hemorrhage**, 829; Post-partum, 822.
- Hemorrhoids**, 769.
- Hernia**, 833.
- Herpes zoster**, 749.
- Hiccough**, 755.
- Hives**, 748.
- Hydrophobia**, 872.
- Hyperemia** of the brain, 862.
- Hypertrophy** and dilatation of the heart, 772.
- Hypochondria**, 887.
- Hysteria**, 875.
- Imbecility**, 888.
- Incontinence** of urine, 777.
- Indications** for remedies in fevers, specific, 853.
- Indigestion**, 755.
- Infants**, diseases of, 786.
- Inflammation** of the bladder, 774; Of the bowels, 846; Of the brain, 865; Of the breast, 820; Of the external ear, 686; Of the eyelids, 690; Of the glands of the groin or armpits, 739; Of the iris, 692; Of the joints, 833; Of the lining membrane of the eyelids, 695; Of the membrane of the heart, 770; Of the ovaries, 810; Of the peritoneum, acute, 843; Of the spinal cord, 869; Of the spleen, 765; Of the testicles, 784; Of the tongue, 753; Of the uterus, 809; Of the urethra, 783; Of the vagina, 806; Of the vulva, 806.
- Inflammatory** rheumatism, 848; rheumatism, chronic, 849.
- Influenza**, epidemic, 709.
- Injury** to a nerve, 830.
- Insects**, bites and stings of, 831.
- Insomnia**, 861.
- Intermittent fever**, 847.
- Intestines**, cancer of, 764.
- Iris**, inflammation of, 692.
- Iritis**, 692.
- Itch**, 747; Barber's, 730.
- Itching** of the skin, 736.
- Jaundice**, 766; In children, 800.
- Joints**, inflammation of, 833.
- Kidneys**, gravel or stone in, 778.
- Labor**, 816; **Bleeding** after, 822.
- La grippe**, 709.
- Laryngitis**, acute, 711; Chronic, 712.
- Laryngismus stridulus**, 793.
- Leg**, milk, 825.
- Legs**, cramps in, 882.
- Leucorrhea**, 807.
- List of remedies**, 890.
- Liver**, cancer of, 764.
- Liver-spots**, 746.
- Lochia**, suppression of, 824.
- Lock-jaw**, 872.

- Looseness of the bowels, 758.
Lung fever, 723.
Lungs, bleeding from, 728; consumption of, 725.
Maculoe, 746.
Malignant pustule, 734.
Mania, 885.
Marasmus, 804.
Mastitis, 820.
Measles, 797.
Medicine cases, 892.
Medicines, care of, 684; Forms of, 684; Selecting and using, 684.
Melancholia, 884.
Membranous croup, 792; Laryngitis, 792.
Menorrhagia, 813.
Menses, absence of, 812; Suppression of, 812.
Menstruation, cessation of, 814; Painful, 811.
Mental derangement, 882.
Metrorrhagia, 813.
Milk crust, 787; Excessive secretion of, 821; Fever, 821; Leg, 825; Scanty secretion of, 821.
Miscellaneous diseases, 838.
Morning sickness, 816.
Mortification, 836.
Mumps, 791.
Myelitis, 869.
Nasal catarrh, chronic, 706.
Nausea and vomiting, 757.
Neck, wry, 832.
Necrosis, 835.
Nephritis, acute, 781; Chronic, 782.
Nerve, injury to, 830.
Nervous system, diseases of, 858; Prostration, 878.
Nettle rash, 748.
Neuralgia, 876; Of the heart, 773; Of the stomach, 762.
Neurasthenia, 878.
Nipples, sore, 819.
Night sweats, 852; Terrors and sleeplessness, 801.
Nocturnal enuresis, 801.
Nose, bleeding from, 703; Polypus in, 704.
Ophthalmia, 696; Neonatorum, 695.
Orchitis, 784.
Organs of circulation, diseases of, 770.
Otorrhœa, 689.
Ovaries, inflammation of, 810.
Painful menstruation, 811.
Pains, after, 818; False, 817.
Painter's colic, 846.
Palpitation of the heart, 773.
Palsy, 870; Scrivener's, 881.
Paralysis, 870.
Paronychia, 737.
Parotiditis, 791.
Parturition, 816.
Peritonium, acute inflammation of, 843.
Peritonitis, acute, 843; Chronic, 845.
Pertussis, 718.
Pharyngitis, 755.
Phlegmasia alba dolens, 825.
Piles, 769.
Pleurisy, 724.
Pneumonia, 723.
Polypus of the nose, 704.
Post-partum hemorrhage, 822.
Prickly heat, 734.
Profuse flow of blood from the uterus, 813.
Prostration, nervous, 878.
Pruritis, 736.
Puerperal fever, 823.
Pulmonary tuberculosis, 725.
Purulent conjunctivitis, 695.
Pustule, malignant, 734.
Putrid fever, 841.
Quinsy, 713.
Red gum, 786.
Remedies in fevers, specific indications for, 853.
Remittent fevers, bilious, 848.
Respiratory organs, diseases of, 703.
Retention of urine, 776; In young children, 800.
Rheumatic fever, 848; Pains of the eyes, 699.
Rheumatism, inflammatory, 848; Inflammatory, chronic, 849.
Rhinitis, acute, 705; Chronic, 706.
Richitis, 803.
Rickets, 803.
Ringworm on the beard, 730; On the body, 731; On the scalp, 730.
Rose cold, 708.
Running of the ears, 689.
Rupture, 833.
Rush of blood to the head, 862.
Salt rheum, 750.
Scabies, 747.
Scalds, 835.
Scalp, ringworm on, 730.
Scanty secretion of milk, 821.
Scarlatina, 795.
Scarlet fever, 794.
Sciatica, 877.
Scorbutus, 746.
Scrivener's palsy, 881.
Scrofula, 740.
Scrofulous conjunctivitis, 696.
Scurvy, 746.
Sea-sickness, 757.
Secretion of milk, excessive, 821; Scanty, 821.
Sickness, morning, 816.
Sight, weakness of, 700.
Simple fever, 794.
Singultus, 755.
Shingles, 749.
Ship fever, 841.
Shock, 831.
Skin, cancer of, 736; Itching of, 736.
Sleeplessness, 801.
Smallpox, 752.
Snuffles, 790.
Sores, bed, 836.
Sore nipples, 819; Throat, 711; Throat, chronic, 712.
Spasmodic croup, 793.
Specks on the cornea, 700.
Spinal cord, inflammation of, 869.
Spleen, inflammation of, 765.
Spotted fever, 867.
Sprains, 827.
Squinting, 694.
Stammering, 881.
St. Anthony's fire, 732.
Stings of insects, 831.
St. Vitus' dance, 880.
Stomach, bleeding from, 757; Neuralgia of, 762; Cancer of, 763; Cramps in, 762.

- Stomatitis, 754.
 Stone in kidney or bladder, 778.
 Strabismus, 694.
 Strains, 827.
 Strangury, 776.
 Sty, 692.
 Sunstroke, 866.
 Suppression of the lochia, 824; Of the menses, 812; Of urine, 777.
 Surgical diseases, 826.
 Sweats, night, 852.
 Swelling, white, 834.
 Swimming of the head, 861.
 Synovitis, 833.
 Syphilis, 774, 785.

 Teething in infants, 788.
 Testicles, inflammation of, 784.
 Tetanus, 872.
 Tetter, 750.
 Throat, sore, 711.
 Thrush, 754.
 Tinea circinata, 731.
 Tinea sycosis, 730.
 Tongue, inflammation of, 753.
 Tonsils, enlarged, 791.

 Tonsillitis, chronic, 791; And quinsy, 713.
 Toothache, 753.
 Torticollis, 832.
 Trachoma, 696.
 Tubercular arthritis, 834.
 Tuberculosis, pulmonary, 725.
 Twitching of the eyelids, 691.
 Typhoid fever, 839.
 Typhus fever, 841.

 Ulcers, 744; Of the cornea, 698.
 Urethra, inflammation of, 783.
 Urinary organs, diseases of, 774.
 Urination, difficult, 879.
 Urine, blood in, 778; Incontinence of, 777; Retention of, 776; Retention of in children, 800; Suppression of, 777.
 Urticaria, 748.
 Uterus, displacement of, 808; Inflammation of, 809; Profuse flow of blood from, 813.

 Vagina, inflammation of, 806.
 Varicella, 795.
 Varicose veins, 741.
 Variola, 752.
 Veins, varicose, 741.
 Verrucoe, 738.
 Vertigo, 861.
 Vomiting, 757.
 Vulva, inflammation of, 806.

 Warts, 738.
 Weak heart, 773.
 Weakness of the sight, 700.
 Wetting the bed, 801.
 Whitlow, 737.
 Whites, 807.
 White swelling, 834.
 Whooping cough, 718.
 Women, diseases of, 805.
 Wool-sorter's disease, 734.
 Worms, 804.
 Wounds, 828; Bleeding from, 829.
 Writer's cramp, 881.
 Wry neck, 832.

 Yellow fever, 842.
 Zona, 749.



INDEX

TO

VETERINARY DEPARTMENT.

- Actionomycosis**, 1272.
Anæmia, horses, 1232; Cattle, 1232, Sheep, 1232; Dogs, 1232.
Anthrax, 1237; Apoplectic, in sheep, 1242; In dogs, 1233; In man, 1233; Gloss, 1240; Proper, 1239; Throat, 1241; Tongue, 1240.
Anthracid angina, 1241; Disease, 1240.
Antidotes for Poison, 1387.
Appearance of membranes, 1220.
Appendix, 1375.
Apoplectic anthrax in sheep, 1242.
Asthma, 1297.

Balls or pills, 1375.
Big legs in horses, 1336.
Bleeding, 1287; Spontaneous, 1287.
Blind staggers, 1332.
Blisters, 1376.
Blood poisoning, horses, 1233; Cattle, 1233; Sheep, 1233; Dogs, 1233.
Blood vessels, diseases of, 1309.
Bog spavin, 1347.
Bone spavin, 1350.
Bots in horses, 1369, 1371.
Bowels, inflammation of, 1327; Inflammation of, in horses, 1327; Inflammation of, in dogs, 1329.
Brain, concussion of, 1331; Concussion of in horses, 1331; Concussion of, in cattle, 1331; Concussion of, in sheep, 1331; Inflammation of, 1330.
Breaking wind, 1297.
Breathing apparatus, diseases of, 1291; Abdominal, 1225; Difficult, 1225; Irregular, 1226; Slow, 1225; Stertorous, 1225; Thoracic, 1225; Quickened, 1224.
Bronchitis, 1294; Chronic, 1296; Parasitic, 1371.
Bronchial pneumonia, 1301.
Burns and scalds, 1341; From acids and strong alkalies, 1343.

Calves, hoose in, 1371; Husk in, 1371; Rickets in, 1344; Parasitic bronchitis in, 1371; Scours of, 1327.
Canker of the ear in dogs 1343; External, in dogs, 1343.
Capped hock, 1348; In cattle, 1348.
Carbuncular fever, cattle, 1242; Sheep, 1242.
Catarrh of sheep, parasitic nasal, 1372.
Catarrhal fever, 1291; In horses, 1291; In cattle, 1291; In sheep, 1291; In dogs, 1291.
Catarrhal pneumonia, 1304
Cattle, contagious pleuropneumonia in, 1286; Choking in, 1314; Diseases of the tongue in, 1309; Expressions peculiar to, 1241; Fever, Texan, 1286; Foreign bodies in the paunch of, 1322; Inflammation of the stomach of, 1323-1324; Parasitic bronchitis in, 1371; Pleurisy in, 1306; Pneumonia in, 1303; Vertigo in, 1320.
Cathartics, 1379.
Cerebral congestion, 1332
Chest, dropsy of, 1307.
Chest founder, 1352.

Choking, 1312; In horses, 1314; In cattle, 1314; In sheep, 1314; In dogs, 1314.
Chorea in dogs, 1335.
Chronic bronchitis, 1296.
Clingfast, 1351.
Coffin-joint, disease of, 1352.
Colic, spasmodic, 1319; In horses, 1319; In cattle, 1319; In sheep, 1319.
Colic, wind, 1317; In horses, 1317; In cattle, 1317; In sheep, 1317; In dogs, 1317.
Color, livid or bluish, 1220.
Concussion of the brain, 1331; Horses, 1331; Cattle, 1331; Sheep, 1331.
Congestion of the lungs, 1299; Plethora, 1230.
Consumption, 1261; In cattle, 1261.
Contagious pleuropneumonia of horses, 1280; Of cattle, 1286.
Contagious ringworm, 1339.
Corn, 1358.
Cough, 1226; Dry, 1226.
Cow, exterior of, 1398.
Cow pox, 1270.
Cow, Pulse of, 1222; Skeleton of, 1399; Teeth of, 1401.
Creeping tetter, 1338.
Crib-biting and wind-sucking in horses, 1315
Curb, 1349.

Definitions, 1219.
Diarrhœa, 1325.
Diseases of the breathing apparatus, 1291; Of the foot, 1352; Of the coffin joint, 1352; Of the heart and blood vessels, 1309; Of the

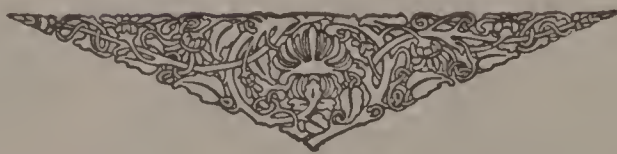
- intestines, 1324; Of the navicular joint, 1352; Of the nervous system, 1330; Of the skin, 1338; Of the spinal cord, 1333; Of the tongue, 1309; Of the tongue in horses, 1309; Of the tongue in cattle, 1309; Of the tongue in sheep, 1309; Of the tongue in dogs, 1309; Of the urinary organs, 1330.
- Diseased condition of joints**, 1347.
- Disorders of the organs of digestion**, 1309; Of the stomach, 1316.
- Distemper in dogs**, 1281.
- Dog-pox**, 1271.
- Dogs**, canker of the ear in, 1343; Choking in, 1314; Diseases of the tongue in, 1309; Distemper in, 1281; Inflammation of the stomach in, 1323-1324; Nervous complications in, 1284, 1304; Pleurisy in, 1307; Pneumonia in, 1283, 1303; pulse of, 1222; Skeleton and internal organs of female, 1403; St. Vitus' dance in, 1335; Ulcers of the eye in, 1283.
- Doses**, table of, 1377.
- Drenches**, 1375.
- Drinks**, 1375.
- Drooling from the mouth** 1311.
- Dropsy of the chest**, 1307.
- Dry cough**, 1226.
- Dry glanders**, 1257.
- Dryness of the mouth**, 1220.
- Dumb madness**, 1250.
- Ear**, rodent ulceration of in dogs, 1343.
- Eczema**, 1339.
- Electuaries**, 1384.
- Emphysema**, 1299.
- Enlarged glands**, 1257.
- Epizootic in horses**, 1277; In cattle, 1280.
- Expression of the face**, 1219.
- Expressions peculiar to cattle**, 1241; Sheep, 1242; Dogs, 1243.
- External canker in dogs**, 1343; Parasitis, 1365; Temperature, 1226.
- Exterior of the cow**, 1398.
- Eye, pink**, in horses, 1277; In cattle, 1280.
- Face**, expression of, 1219.
- False quarter of hoof**, 1357; Ringworm, 1338.
- Farcy**, 1252; Acute, 1258; Chronic, 1259.
- Fardal-bound in cattle**, 1320; In sheep, 1320.
- Fever**, 1288; Carbuncular in cattle, 1242; Carbuncular in sheep, 1242; Intestinal in cattle, 1242; Catarrhal, 1291; Catarrhal in horses, 1291; In cattle, 1291; In sheep, 1291; In dogs, 1291; Mixtures, 1383; Texan cattle, 1286.
- Flatulence in horses**, 1317; In cattle, 1317; In sheep, 1317; In dogs, 1317.
- Fleas**, 1365; In horses, 1365; In cattle, 1365; In dogs, 1365.
- Flies**, 1367.
- Fly-maggots in sheep**, 1365.
- Foals**, rickets in, 1344; Scours in, 1327.
- Fomentations**, 1377.
- Foot and mouth disease**, 1286.
- Foreign bodies in the mouth**, 1311; In the paunch of cattle, 1322.
- Founder**, 1361.
- Furious rabies**, 1249.
- Gadfly in sheep**, 1369.
- General diseases common to all animals**, 1228; Inflammation, 1288.
- General plethora in horses**, 1230; In cattle, 1230; In sheep, 1230.
- Gid or turn sick in sheep**, 1370.
- Glanders and farcy**, 1252; Acute, 1254; Chronic, 1255; Dry, 1257.
- Glands**, enlarged, 1257.
- Gloss**, anthrax, 1240.
- Glossitis**, 1309.
- Grass ball in cattle**, 1320; In sheep, 1320.
- Grogginess in horses**, 1352.
- Grubs**, 1367; In horses, 1365; In cattle, 1365.
- Heart**, diseases of, 1309.
- Heaves**, 1297.
- Hemorrhages**, 1287.
- Herpes circinatus**, 1338.
- Hoose**, in calves, 1371; In lambs, 1371.
- Horse ail**, 1273.
- Horses**, big leg in, 1336; Choking in, 1314; Contagious pleuro-pneumonia of, 1280; Cribbiting in, 1315; Diseases of the tongue of 1309; Inflammation of the stomach of, 1322; Muscles of, 1392; Pleurisy in, 1306; Pneumonia in, 1302; Points of, 1389.
- Horse pox**, 1270.
- Horse**, prominent ills of the, 1390; Pulse of the, 1221; Scratches in the, 1340; Skeleton of, 1395; Splint, 1346; Urticaria in, 1338; Teeth of, 1397; Vertigo in, 1332; Wind-sucking in, 1315.
- Husk in calves**, 1371; In lambs, 1371.
- Hydrophobia**, 1246.
- Hydrothorax**, 1307.
- Impaction of the third stomach in cattle**, 1320; In sheep, 1320.
- Indigestion**, acute, 1317; Chronic, 1320.
- Inflammation**, general, 1288; Of the bowels, 1327; Of the bowels in horses, 1327; Of the bowels in dogs, 1329; Of the brain, 1330; Of the spinal cord and coverings, acute, 1334; Of the spinal cord and coverings, chronic, 1334; Of the stomach, 1322; Of the stomach in horses, 1322; Of the stomach in cattle, 1323; Of the stomach in sheep, 1323; Of the stomach in dogs, 1323; Of the tongue, 1309.
- Influenza in horses**, 1277; In cattle, 1280.

Internal form of fever in cattle, 1242.
Internal organs of the female dog, 1403; **Parasites**, 1369; **Temperature**, 1226.
Intestines, diseases of, 1324.
Jaw, lump, 1272.
Joints, diseased condition of, 1347.
Lambs, husk in, 1371; **Hoose** in, 1371; **Scours** of, 1327; **Parasitic bronchitis** in, 1371.
Lampas, 1311.
Laminitis, 1361.
Lice, 1366; On horses, 1365; On cattle, 1365; On sheep, 1365; On dogs, 1365.
Liniments, 1384.
Livid or bluish color of membranes, 1220.
Lobular pneumonia, 1304.
Lockjaw, 1266; In cattle, 1267; In sheep, 1267; In dogs, 1268; **Mortality** from, in horses, 1268; In cattle, 1268; In sheep, 1268; In dogs, 1268.
Lotions, 1385.
Lump jaw, 1272; In horses, 1273; In cattle, 1273; In sheep, 1273.
Lungs, congestion of, 1299.
Lung fever, 1301.
Lymphangitis, 1336.
Madness, 1246; **Dumb**, 1250.
Maggots, 1367; In sheep, 1367.
Mange, 1339-1368; In horses, 1365; In dogs, 1365.
Medicines and their doses, 1377.
Membranes, appearance of, 1220.
Methods of giving medicines to animals, 1375; Internally, 1375; Externally, 1376.
Mouth, drooling from, 1311; **Dryness** of, 1220; **Over-moist condition** of, 1220; **Foreign bodies** in, 1311.

Muscles between the ribs, soreness of, 1308; Of the horse, 1392.
Navicular joint, disease of, 1352.
Nervous complications in dogs, 1284; **system**, diseases of, 1330.
Nettle rash, 1338.
Organs of digestion, disorders of, 1309.
Over-moist condition of the mouth, 1220.
Pallidity, 1220.
Paralysis of the muscles of swallowing, 1312.
Parasitic diseases, 1365.
Parasitic bronchitis, 1371; In calves, 1371; In cattle, 1371; In lambs, 1371; In sheep, 1371.
Parasitic nasal catarrh of sheep, 1372.
Parasites, external, 1365; Internal, 1369.
Parrot-mouth, 1310.
Pharyngitis, 1311.
Pills, 1375.
Pink eye in horses, 1277; In cattle, 1280.
Plethora congestion, 1230.
Pleurisy, 1306; In horses, 1306; In cattle, 1306; In sheep, 1307; In dogs, 1307.
Pleurodynia, 1308.
Pleuro-pneumonia of the horse (contagious), 1280; Of cattle (contagious), 1286.
Pneumonia, 1301; **Acute**, 1302; **Bronchial**, 1302-1304; **Catarrhal**, 1302-1304; **Lobular**, 1302-1304; In horses, 1302; In cattle, 1303; In sheep, 1303, 1304; In dogs, 1283, 1303, 1304.
Points of the horse, 1389.
Poisons, antidotes for, 1387; **Special**, 1388.
Poisoning, blood, in horses, 1233; In cattle, 1233; In sheep, 1233; In dogs, 1233.
Poultices, 1376.
Pox, 1269; In horses, 1270; In cows, 1270; In sheep, 1271; In dogs, 1272.

Prescriptions, 1379.
Prominent ills of the horse, 1390.
Pulse, 1221; Of the horse, 1221; Of the cow, 1222; Of the sheep, 1222; Of the dog, 1222; **Beats**, symptoms afforded by the variation in, 1222.
Pulsation of the veins, 1224.
Puppies, rickets in, 1344.
Pyæmia, 1233.
Quarter crack, 1356.
Quittor, 1361.
Rabies, 1246; In the horse, 1248; In cattle, 1248; In sheep, 1249; **Furious**, 1249; **Furious** in dogs, 1249.
Respiratory function, symptoms afforded by variation of, 1223.
Rickets, 1344; In foals, 1344; In calves, 1344; In puppies, 1344.
Ringbone, 1351.
Rinderpest, 1286.
Ringworm, contagious, 1339; **False**, 1338; **True**, 1338.
Roaring in horses, 1294.
Rodent ulceration of the ear in dogs, 1343.
Round worms, 1369; In horses, 1369; In cattle, 1369; In sheep, 1369; In dogs, 1369.
Sand cracks, 1356.
Scab, in the sheep, 1365-1367.
Scalds, 1341.
Scours, 1327; In foals, 1327; In calves, 1327; In lambs, 1327.
Scratches in horses, 1340.
Seedy toe, 1360.
Septicæmia, 1336.
Sheep, choking in, 1314; **Diseases of the tongue** of, 1309; **Expressions** peculiar to, 1242; **Inflammation of stomach** of, 1323, 1324; **Parasitic nasal catarrh** in, 1372; **Parasitic bronchitis** in, 1371; **Pleurisy** in, 1307; **Pneumonia** in, 1303-1304; **Pox**, 1271; **Pulse** of, 1222; **Scab** in, 1365-

- 1367; Skeleton of, 1402; Turn sick in, 1370; Vertigo in, 1320.
Shoeing, 1363.
Side bone, 1355.
Skin, diseases of, 1338.
Skeleton of the horse, 1395; Of the cow, 1399; Of the sheep, 1402; Of the female dog, 1403.
Sores of the tongue in horses, 1310; In cattle, 1310; In sheep, 1310; In dogs, 1310.
Sore throat, 1292.
Soreness of muscles between the ribs, 1308.
Spasmodic colic in horses 1319; In cattle, 1319; In sheep, 1319.
Spavin bog, 1347; Bone, 1350.
Special poisons, 1388.
Spinal cord, and its coverings, 1334; Acute inflammation of, 1334; Chord, chronic inflammation of, 1334.
Spinal cord, diseases of, 1333.
Splint in horses, 1346.
Spontaneous bleeding, 1287.
Stomach, inflammation of, 1322; In horses, 1322; In cattle, 1323; In sheep, 1323; In dogs, 1323.
St. Vitus' dance in dogs, 1335.
Strangles, 1273; In dogs, 1277.
Sunstroke, 1332.
Swallowing, paralysis of muscles of, 1312.
Symptoms afforded by the variations in the pulse beats, 1222; Afforded by the variations of the respiratory functions, 1224.
Table of doses, 1377.
Tape worms, 1369; In horses, 1369; In cattle, 1369; In sheep, 1369; In dogs, 1369.
Teeth of the horse, 1397; Of the cow, 1401.
Temperature, external, 1226; Internal, 1226.
Tetanus, 1266; In horses, 1266; In cattle, 1267; In sheep, 1267; In dogs, 1268.
Tetanus, mortality in, in horses, 1268; In cattle, 1268; In sheep, 1268; In dogs, 1268.
Texan cattle-fever, 1286.
Thoroughpin, 1348.
Thread-worms in horses, 1369; In cattle, 1369; In sheep, 1369; In dogs, 1369.
Throat anthrax, 1241; Sore, 1292.
Thrush, 1359.
Ticks, 1366; In horses, 1365; In cattle, 1365; In sheep, 1365; In dogs, 1365.
Toe crack, 1356.
Tongue anthrax, 1240; Diseases of the, 1309.
Tonics, 1381.
True ringworm, 1338.
Tuberculosis, 1261; Abdominal, in cattle, 1263; General, in cattle, 1263; In horses, 1265; In cattle, 1261; In sheep, 1265; In dogs, 1265; Of the udder, 1263.
Ulcers of the eye in dogs, 1283.
Urinary organs, diseases of, 1330.
Urticaria in horses, 1338.
Variola, 1269.
Veins, pulsation of, 1224.
Vertigo in cattle and sheep, 1320; In horses, 1332.
Veterinary medicine, 1217.
Vomiting, 1316; In horses 1316; In cattle, 1316; In sheep, 1316; In dogs, 1316.
White skit, 1327.
Wind colic, 1317; In horses, 1317; In cattle, 1317; In sheep, 1317; In dogs, 1317.
Wind-sucking in horses, 1315.
Worms in animals, 1369.
Yellowness, 1220.



NOV 27 1906

7/24



DOBBS BROS.
LIBRARY BINDING

ST. AUGUSTINE, FLA.

LIBRARY OF CONGRESS



0 033 261 324 8